

**An Evaluation of the Impact of Staff Training on Teaching
Staff's Knowledge of the Defining Criteria for Learning
Disability and the Management of Challenging Behaviour.**

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Declaration

This thesis has been composed by myself and the work contained herein is my own

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ABSTRACT

OBJECTIVE: This study aimed to investigate whether staff training improved knowledge about the defining criteria for learning disability, knowledge about the management of challenging behaviour, attributions about challenging behaviour and confidence in working with children with a learning disability and challenging behaviour in teaching staff from mainstream primary school settings. In addition, the study aimed to investigate if staff training improved teaching staff's attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream settings. A further investigation into whether the number of years experience of teaching children with a learning disability positively affected their levels of confidence in working with and knowledge about children with a learning disability and challenging behaviour.

METHOD: A within subjects design was used to investigate the impact of a half-day training event on the above factors in a group of 40 teaching staff from mainstream primary school settings. A questionnaire devised for the purposes of assessing the study's hypotheses and the Impact of Inclusion Questionnaire (IIQ) were employed in this study and completed by participants prior to training, immediately after training and one-month following training.

RESULTS: Staff training was shown to significantly improve knowledge about the defining criteria for learning disability immediately after training and at one-month follow-up. Training, however, did not significantly improve knowledge about challenging behaviour immediately after training although some significant differences were found at follow up. Significant differences in the types of answers provided at each time point were found in a number of areas related to knowledge about challenging behaviour. Training did not significantly change attitudes towards the inclusion

of children with a learning disability and challenging behaviour in mainstream settings and did not significantly improve confidence about working with children with a learning disability and challenging behaviour. No significant relationship was found between experience of teaching children with a learning disability and confidence about working with children with a learning disability and challenging behaviour, knowledge about the defining criteria for learning disability or knowledge about managing challenging behaviour.

CONCLUSION: A half-day training event about learning disability and challenging behaviour significantly improved knowledge about the defining criteria for learning disability but had little impact on increasing knowledge about challenging behaviour in a group of mainstream teaching staff. Teaching staff demonstrated very limited knowledge about learning disability prior to training and demonstrated negative attributions about the causes of challenging behaviour in children with a learning disability, the latter of which was not improved by training. Training also failed to improve attitudes towards inclusion and possible reasons for the current study's significant and non-significant results are discussed. The clinical and ethical implications of the findings are discussed and suggestions for further research are outlined.

1.0 INTRODUCTION

There are currently 30,000 children with a learning disability in Scotland (NHS Quality Improvement Scotland, 2006). With the increasing focus on social inclusion and its reflection in current legislation (e.g. Education (Additional Support for Learning) (Scotland) Act, 2004), children with a learning disability are increasingly being educated in mainstream classrooms. The research suggests, however, that not all educational staff, including teachers and teaching auxiliaries, have the knowledge, confidence or training (Rose, 2001) to provide an optimal educational experience to children with special educational needs (including children with a learning disability). The recent Education (Additional Support for Learning) (Scotland) Act (2004) aimed to ensure that children with additional needs would receive the educational support and resources required to meet these needs, however, the Act makes little reference to children with a learning disability. This coupled with differences in the terminology used between educational services ('learning difficulty', 'additional needs' or 'special educational needs') and health services (learning disability) may lead to confusion for teachers and the children themselves and may mean that training specifically about working with children with a learning disability is not available to educational staff. Confusion and a lack of appropriate knowledge about the term learning disability may result in a less than optimal educational experience for children with a learning disability in mainstream classrooms. There is also an increasing concern that teaching staff in mainstream classrooms have to manage children with challenging behaviour, again without appropriate training (Rose, 2001). Research suggests that children with a learning disability may use challenging behaviour such as aggression, self-harm and disruptive behaviour (Kiernan & Kiernan, 1994) when their support needs are not met and that the reactions of staff members towards children may reinforce the challenging behaviour they display (Hastings & Remington, 1994a). Discrepancies in terminology about

challenging behaviour also exist between the education and health sectors (Visser & Cole, 2003).

Teaching staff that have a poor understanding of working with children with a learning disability who may display challenging behaviour and that have not received training in either learning disability or challenging behaviour may fail to deal with challenging behaviour appropriately, thus exacerbating the behavioural difficulties (Oliver, 1993; Hastings & Remington, 1994b) and contributing to their own stress and burn-out (Male & May, 1997a, Male & May, 1997b).

This study aims to examine the extent to which teaching staff have a basic knowledge about learning disability and challenging behaviour, their confidence in supporting children with a learning disability and challenging behaviour and their attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream classrooms, both before and after training.

This thesis will begin by defining learning disability and outlining the terminology used to describe a learning disability in health and education services, before going on to consider the support needs of children with a learning disability and the implications of this for teaching staff supporting them in class.

This thesis will then look at the Additional Support for Learning Act (2004) and consider the implications of this for the education of children with a learning disability in mainstream settings. Research in the area of staff knowledge about working with people with learning disability and challenging behaviour will be considered after this, including research considering the attributions made about challenging behaviour. Following this, the attitudes that teachers have about inclusive education will be considered along with the possible factors which have been shown to influence

attitudes and knowledge (e.g. confidence and staff training). The last section will consider the need for staff training for teaching staff in the area of special educational needs, including learning disability, and the impact that staff training has on changing knowledge, confidence, practice and attitudes.

1.1 Defining Learning Disability and Prevalence Rates.

The terminology used to describe a learning disability differs between health and educational services (Visser & Cole, 2003). Research conducted with health and social care staff indicates that many are unaware of what a learning disability is (McKenzie et al., 1999a; McKenzie et al., 1999b) and confusion about the different terminologies used may contribute to this. This section will examine the definition of a learning disability within the health sector and how this differs to the terminology used in education services.

1.1.1 Diagnosing a Learning Disability

A learning disability occurs as a result of genetic or developmental factors or damage to the brain and is a life-long condition that starts before adulthood. It is the current term used in the United Kingdom to describe someone who meets the following three criteria employed by the World Health Organisation's diagnostic system (1980), DSM-IV (American Psychiatric Association, 1994) and the British Psychological Society (BPS) (2000);

- **Impairment of Intellectual Functioning:** an Intellectual Quotient (IQ) of at least 2 standard deviations below the mean. This is currently accepted as being an IQ of less than 70.

- **Impairment of Adaptive Functioning:** Concurrent deficits or impairments in present adaptive functioning (i.e. the person's effectiveness in meeting the standards expected for his or her age by his or her cultural group) in at least two of the following areas: communication, self-care, social skills, use of community resources, self-direction, functional academic skills, work, leisure, health issues and safety.

- **Onset prior to the age of 18.**

The assessment of these three criteria is outlined below.

1.1.1.1 Assessment of Intellectual Functioning

The Wechsler Adult Intelligence Scale - Third Edition (WAIS-III) (Wechsler, 1998) and the Wechsler Intelligence Scales for Children - Fourth Edition (WISC-IV) (Wechsler, 2003) are the most widely used and accepted standardised measures of intelligence (Johnson & Bouchard, 2005; Williams et al., 2003). Only Applied Psychologists are qualified to administer the WAIS-III or the WISC-IV and clinical psychologists are, therefore, pivotal in the process of diagnosing a learning disability.

The severity of an individual's learning disability can also be identified by assessing their IQ. Those individuals whose IQ is assessed as being between 55 and 69 are considered to have a significant learning disability, while those with an IQ of less than 55 are considered to have a severe learning disability (BPS, 2000).

1.1.1.2 Assessment of Adaptive Functioning

There is currently not a precise psychometric tool available to assess the criterion of impaired adaptive functioning and specific guidelines on the assessment of adaptive functioning are somewhat lacking (Jenkinson, 1996). The British Psychological Society does not recommend one particular tool and instead suggests that adaptive functioning should be assessed using a formal assessment in line with good practice guidelines (BPS, 2000). Formal assessment tools such as The Vineland Adaptive Behaviour Scales (Sparrow et al., 1984) and AAMR Adaptive Behaviour Scale – Residential and Community (Nihira et al., 1993) are used to help identify any significant levels of impairment that may exist in a person's adaptive functioning.

1.1.1.3 Assessment of Childhood Onset

The aforementioned impairments in intellectual and adaptive functioning must have occurred prior to the age of 18, that is, during the brain's developmental period, in order for the person to be considered to have a learning disability. When working with children who have significant impairments in intellectual and adaptive functioning the age of onset criterion is met. For adults, however, ascertaining the age of onset of the impairment is important, in part, to ensure that their needs are met by the most appropriate service, although there remains some concern that this criterion serves a gate-keeping function (BPS, 2000). In order to ascertain the age of onset in adults a thorough history is often essential and reference to previous medical, educational and social work records is crucial (BPS, 2000).

1.1.2 Prevalence Rates

The current consensus is that there are approximately 120,000 people with a learning disability in Scotland, with 25% of this figure relating to children with a learning disability (30,000) (NHS Quality Improvement Scotland, 2006). Additional figures from NHS Scotland suggest that there are approximately 20 people in every 1,000 with a significant learning disability and 3 to 4 people in every 1,000 with a severe learning disability (Kandel et al., 2004).

These figures are important in regards to this thesis because while recent legislation places a legal duty on educational authorities to educate all children in mainstream settings Education (Additional Support for Learning) (Scotland) Act, (2004), the implications and significance of this political drive for those affected (e.g. teaching staff) will be related to the number of children this is applicable to. The above figures suggest that 30,000 children have a learning disability in Scotland and will be considered for mainstream education. These implications will be discussed later in regards to teaching staff's responsibilities.

1.1.3 Support Needs of People with a Learning Disability

People with a learning disability will have a variety of needs that are a direct result of impairments in their intellectual and adaptive functioning. The implications of having a learning disability will vary from individual to individual, according to their cognitive profile, daily living skills, level of intellectual impairment and previous learning experiences. There are, however, common difficulties that exist for people with a learning disability on the basis of their significant and global intellectual impairment. The WAIS-III (Wechsler, 1998) and the WISC-IV (Wechsler, 2003) assess cognitive functioning according to four sub-domains; verbal comprehension, perceptual reasoning/perceptual organisation, working memory and processing speed. People with a learning

disability will have significant impairments in all these areas and will find some every day tasks challenging without additional support from others. Wolitzky et al. (1972) found attentional disturbances amongst a group of 39 adults with a learning disability in comparison to a group of adults with no intellectual impairment. Their findings indicate that the learning disability group had such a limited attentional capacity that if any stimuli irrelevant to the task was introduced it seriously impaired their task performance. For a child with a learning disability in mainstream settings there may be a number of distractions in the classroom that will interfere with their ability to complete a task or impair their overall task performance. Additional support to keep the child on task and minimise these attentional difficulties would be necessary to help them reach their academic potential.

People with a learning disability have individual cognitive profiles with relative strengths and weaknesses in different areas of cognitive functioning, however, performance on working memory tasks has been shown to be consistently worse in people with a learning disability than other areas of functioning and in comparison to people without a learning disability (Pulsifer, 1996; Pennington & Bennetto, 1998; Everington & Fulero, 1999). As a consequence of working memory difficulties, people with a learning disability will not only have difficulties acquiring new information but also with retaining and retrieving this information. If teaching staff were aware of the difficulties of children with a learning disability simple strategies like repetition, over-learning, providing the information in small pieces and using prompts (McKenzie & Murray, 2002) could be easily adopted to help minimise the impact of the child's memory difficulties.

Significant difficulties with language comprehension has implications for a child with a learning disability and will affect their ability to appropriately follow instructions and understand what is

expected of them (McKenzie & Murray, 2002). Those working to support children with a learning disability should adapt the language they use in order to positively affect the child's verbal comprehension. Using simple language and short sentences in combination with non-verbal support like gestures and prompts will be necessary when communicating with someone with a learning disability. In an educational setting verbal instruction is often key to the initiation and completion of a task. A child with a learning disability must be supported in this area.

A learning disability can be caused by the presence of genetic disorders such as Fragile-X Syndrome, Prader-Willis Syndrome and Cornelia de Lange Syndrome and recent research has begun considering the impact that such genetic disorders have on behavioural phenotypes in order to ascertain the behavioural patterns that may exist as a result of certain disorders (Oliver & Horsler, 2006; Arron et al., 2005)¹. It is, therefore, important that people working with children who have a learning disability as a result of a particular syndrome are informed about the impact of the disorder on the child's functioning and individual needs.

Any person working with children with a learning disability should, at the very least, be aware of these cognitive implications in order to meet their basic support needs (Ward, 1984). It is also important that they shape the way in which they work with children with a learning disability in order to help minimise the common difficulties encountered (McKenzie & Murray, 2002). Having a basic understanding of these common difficulties and knowledge of the basic strategies that address

¹ This research raises further issues with regards to staff knowledge about working with children whose learning disability is caused by the presence of a particular disorder or syndrome. While this thesis is primarily concerned with knowledge about learning disability generally, the author recognises that each child will display individual differences and will have individual needs and that these may arise due to a particular disorder or syndrome. It may be that future research needs to consider how best to support improving staff knowledge about working with people with particular syndromes.

them would be particularly important for those working with children with a learning disability in an educational setting where their primary role is to promote educational success. Such skills would be essential when supporting children with a learning disability to achieve their educational goals.

Having a significant impairment in adaptive functioning also has implications in terms of the type and level of support required from those working with a child with a learning disability. The American Association of Mental Retardation (AAMR) (2002) outlines the levels of support required by individuals who have a learning disability (or “mental retardation”). The AMMR no longer refers to the severity of a person’s impairment and instead favours descriptive levels of the support intensity required by people with a learning disability. According to this approach, which has also been adopted as a useful sub-classification system by the BPS (2000), a person with a significant impairment in adaptive functioning will require ‘intermittent’ or ‘limited’ levels of support, while a person with a severe impairment in adaptive functioning will require extensive and pervasive levels of support (see Table 1 in Appendix 1).

This classification system implies that, regardless of the severity of their impairment, children with a learning disability will, without exception, require additional support of some description from those who provide their care and support (e.g. teaching staff). It is important that teaching staff have the proper skills to provide this support, regardless of the intensity.

1.2 Terminology for Learning Disability

When considering previous research and current literature in the field of learning disability, one inevitably has to be aware of terminology changes across time and terminology differences

between countries. The changes and differences in terminology within the health and education sectors are summarised in this section.

1.2.1 Terminology in Health Sector

Changes in the terminology used to refer to people with a learning disability are apparent throughout history, and have often occurred as a result of a drive for political correctness (Reid, 1997). Over the last 50 years 'subnormal', 'mental retardation', 'mental handicap' and now 'learning disability' have all had been used to refer to the same population of people (Gath, 1992).

The term 'learning disability' was made official by the Minister of Health in 1991 (Learning Disability Advisory group, 2001). This term, however, is often viewed as being synonymous with educational problems such as dyslexia (Hames & Welsh, 2002), which, by definition, is a learning difficulty. Such is the significance of the potential inappropriateness of the label 'learning disability' that a group of parents of children with a severe learning disability claimed that the government has failed to recognise and consequently has undermined their children's needs and rights for appropriate services and resources by using euphemisms (Reid, 1997). Authors like Zigler & Burack (1989) remind us that labels can have positive consequences and are often necessary to access services.

'Learning disability' remains the official term in the UK, however, a variety of other labels are currently utilised across the world. In Europe, 'intellectual disability' and 'intellectual impairment' are often used, while in the United States 'mental retardation' is still used by many organisations, however, in April 2007 the term 'intellectual disability' formally replaced 'mental retardation' (see Schalock et al., 2007). The American Association of Mental Retardation (AAMR) is now known as American Association on Intellectual and Developmental Disabilities (AAIDD).

To add to the confusion, the term 'learning disability' is used in the United States to refer to children with learning difficulties, which in the UK, covers a broad spectrum of disorders, including dyslexia, dyscalculia and dysgraphia.

1.2.2 Terminology In Education Sector

In the UK, the education sector tends to use terms which reflect the educational needs and/or difficulties of the child, such as special educational need, learning difficulties (see Table 2 in Appendix 2) and for more specific areas of difficulty terms such as numeracy and literacy difficulties, speech and language difficulties and sensory difficulties are utilised. This means that a number of diagnostic labels from health would be considered within one educational label. For example, additional needs is one of the current terms used to refer to children who require additional support in class (Education (Additional Support for Learning) (Scotland) Act, 2004) and this, by definition, would include children with autistic spectrum disorder, attention deficit hyperactivity disorder and a learning disability. Terms such as 'special needs', 'special educational needs' and 'learning difficulties' have been used in the past and are still used within the education sector to refer to a large population of children including those with a learning disability (see Table 2 in Appendix 2). The different approaches to labelling in the health and education sectors mean that those working in educational settings may be unaware of the particular diagnoses that children have and the characteristics of these and will focus instead on the educational need of the child. The question, therefore, is whether or not educational need can be properly ascertained and a child's needs properly met without a basic knowledge of the characteristics and implications of the disorders that some children have. It remains unclear as to whether the educational labelling

system is over-inclusive and the question this thesis aims to address is whether teachers have a sufficient knowledge of the diagnostic term learning disability, given the implications of this for understanding and meeting their needs in the classroom.

Although literature using both health and educational terms was reviewed for the purposes of this thesis the term learning disability will be used in place of the terms that are synonymous with it (e.g. mental retardation, intellectual disability) to ensure consistency. Terms that refer to other disorders as well as learning disability (e.g. special educational needs, additional needs) will be used where appropriate, with the recognition that, while they do include children with a learning disability, they are not exclusive to this population.

While the previous section examined the changes in terminology that have existed in relation to the learning disability population over time and across settings there also exists significant changes in the way in which learning disability services have operated. The following section aims to examine some of these service changes with a view to guiding the reader to the current context within which learning disability services operate, particularly in relation to the education of children with a learning disability.

1.3 The Educational Context of Learning Disability

At the beginning of the 20th century children with a learning disability were not deemed educable and specialised institutions were set up by voluntary agencies to take in 'idiot' children, with the aim of training them to become valuable and productive members of society (Caine et al., 1998).

Children with a learning disability were, therefore, not part of the mainstream education system.

In 1944 the Education Act (UK) addressed the lack of educational facilities for children with a learning disability and it became the responsibility of local authorities to determine if a child needed special education or if they were ineducable. The latter became the responsibility of the Department of Health and Social Services and were not entitled to an education. Classes separate to mainstream classes were established to accommodate those children identified as educable.

The Warnock report in 1978 was pivotal in changing the way in which children with special educational needs (including children with a learning disability) were perceived. The report stated that as many children as possible should be educated in mainstream classrooms. The term special educational needs was introduced as a consequence of this report and replaced terms like 'mongol', 'handicapped' and 'educationally subnormal' (The Education Act, 1981). The principles of normalisation (Wolfenberger, 1972) also influenced the educational provision for children with a learning disability around this time. In 1980 the Education (Scotland) Act (amended by the Education (Scotland) Act 1981) placed a duty on educational authorities to meet the educational needs of all children, including those with a learning disability. Since this time, mainstreaming and the inclusion of children with special educational needs has been one of the dominant features in educational legislation (e.g. Special Educational Needs & Disability Act 2001 and The Education (Additional Support for Learning) (Scotland) Act (2004)).

Services for children with a learning disability have changed markedly over the years in response to social, political and philosophical influences. The segregation of children with a learning disability on the basis that they were uneducable has been largely replaced by social inclusion and with that a drive towards inclusive education. This move has been supported by legislation, the most recent

of which is the Education (Additional Support for Learning) (Scotland) Act (2004). The following section will review the this Act and will consider the implications of it in relation to those who work with children with a learning disability both in the health and education sectors.

1.4 Education (Additional Support for Learning) (Scotland) Act (2004)

The term 'inclusion' has replaced 'integration' in relation to educating children with special educational needs and places an emphasis on restructuring mainstream schooling in order to accommodate the needs of all children, regardless of ability or disability (Avramidis et al., 2000). In 2004, the Scottish Parliament decided that certain children would not benefit fully from education without additional support and consequently they passed the Education (Additional Support for Learning) (Scotland) Act (ASL Act). The main aim of the Act is to create an improved educational system for supporting children's learning. The Act considers all children who require additional support in order to gain maximum benefit from their educational experience. By definition in the Act, a child is considered to have additional support needs when;

“.....for whatever reason, the child or young person is, or is likely to be, unable without the provision of additional support to benefit from school education....”

(Scottish Executive Education Department, 2005; p.15).

'Benefiting' from the educational process refers to a spectrum of gains and a child is considered to have benefited from their education when they have access to a curriculum which supports their learning and development and where the teaching and support from others meets their needs.

In order to meet the needs of a child with a learning disability teaching staff have to offer a curriculum that is suitable to their needs and to use appropriate teaching strategies to promote their education, which, as discussed earlier, should involve an understanding about the implications of having a learning disability. In addition, mainstream classroom teachers, who may not have received any training in relation to working with children with additional needs (Rose, 2001) and who under the ASL Act are now expected to work with children with a learning disability, have a legal and professional obligation to know about the characteristics and needs of the children they work with (Ward, 1984).

The Act covers children with emotional, social, physical and sensory difficulties as well as children with cognitive impairments. There is, however, no specific reference to children with a learning disability, except when the Act makes reference to what factors may give rise to additional support needs.

“...factors may be diagnostic terms such as autistic spectrum disorder, learning disability or clinical depression.”

(Supporting Children's Learning- Code of Practice 2005; p.62).

A child with a diagnosis of learning disability will, without exclusion, have additional support needs in a mainstream educational setting (McKenzie & Murray, 2002; AAMR, 2002; BPS, 2000). It is, therefore, somewhat surprising that learning disability is not referred to on more occasions in the ASL Act's Code of Practice. This neglect does not apply to all diagnostic healthcare labels and Autistic Spectrum Disorder is referred to 8 times.

1.4.1 Implications of the Act for Clinical Psychologists

The Act states that local Educational Authorities must make “adequate and efficient” provision to enable each individual child to receive the additional support they require. The educational authority, therefore, have to make the necessary arrangements to identify each child’s additional support needs, including drawing on the expertise of relevant health care workers, such as clinical psychologists. There are, therefore, direct implications for clinical psychologists, in relation to implementing the Act. There may also be secondary implications for mental health workers if children with ‘additional needs’ are not successfully integrated into mainstream classrooms, for example an increase in challenging behaviour may result in an increase in referrals to Child & Adolescent Mental Health Services (CAMHS).

To summarise, the Education (Additional Support for Learning) (Scotland) Act places a legal duty on the education sector to educate children with a learning disability in mainstream settings and it has already been established that this population will have substantial needs as a direct result of having a learning disability. It is important to consider whether or not teaching staff are likely to have a specific knowledge about working with children with a learning disability, including an awareness of the defining criteria. The following section will consider the research in the area of knowledge about learning disability and the implications of this in relation to working with children with a learning disability in mainstream educational settings.

1.5 Knowledge about Learning Disability

While research into staff knowledge about learning disability has been undertaken in a number of areas within the healthcare sector and the general population, similar research within the education

sector is very limited. The knowledge of student nurses (Barr, 1990) and general practitioners (McKenzie et al., 1999a) has been investigated, the former showing that student nurses have an inaccurate knowledge of the abilities and needs of people with a learning disability and can confuse the term 'mental handicap' with 'mental illness'. The latter study showed that while 68% of the general practitioners surveyed in this study were able to identify impaired intelligence as a criterion of having a learning disability, only 3% were able to identify the full 3 criteria required to diagnose a person has having a learning disability. There remains concern, therefore, about the level of knowledge held by health care staff that work with people with a learning disability. A sample of the general public was surveyed in relation to their knowledge about factors related to having a learning disability and a high percentage (29%) of participants thought that dyslexia was a form of learning disability, indicating confusion between learning disability and a learning difficulty (Hames & Welsh, 2002). The above research suggests that there is a lack of knowledge about what defines a learning disability and that, at times, the term can be confused with other conditions (e.g. dyslexia or learning difficulties).

There is an absence of research in regards to knowledge about learning disability specifically within the education sector, however, there has been research into the knowledge that teachers hold about other disorders. Ghanizadeh et al. in 2006 considered teachers' knowledge about and attitudes towards attention deficit hyperactivity disorder (ADHD). They found that less than half of the 196 schoolteachers surveyed agreed that ADHD is due to biological and genetic vulnerabilities. Over 50% of participants felt that ADHD was the result of parental spoiling. The authors concluded that knowledge about ADHD amongst the participants was 'very low'.

An investigation into teachers' knowledge about speech and language difficulties in children with special educational needs indicated that approximately 88% of the participant group considered their knowledge in the area of speech and language impairment to be limited or very limited (Sadler, 2005).

A national survey undertaken by Bishop & Boag (2006) in the United States aimed to establish teachers' knowledge about children with epilepsy. Such knowledge has been found to have a direct impact on the social skill development, school performance and future employment of students with epilepsy (Hseish & Chiou, 2001).

While it is not possible to extrapolate directly from this research in relation to teaching staffs' knowledge about learning disability it does suggest that knowledge about other disorders can be poor and the implications of this can extend beyond the educational success of the child (Hseish & Chiou, 2001). Similar considerations may be important in relation to teaching staff's knowledge about learning disability

Despite the legal, professional and moral obligation for teaching staff to have an understanding of the needs of the children they support, there has been little research into staff knowledge about learning disability in the education sector in the UK. Research in the health sector suggests that health care workers often do not have a substantial knowledge about learning disability (McKenzie et al., 1999a) and within the education sector the evidence available suggests that a similar lack of knowledge exists in regards to ADHD, speech and language difficulties and epilepsy. The research conducted in the area of adults with a learning disability coupled with research from the education

sector in relation to other areas of additional needs highlight the importance of investigating teaching staff's knowledge about working with children with a learning disability.

Staff knowledge has also be shown to be a particularly important factor in the management of challenging behaviour (Hastings & Remington, 1994a; Hastings & Remington, 1994b; Hastings et al., 1995; Hastings, 1997a) and the next section will consider the research in this area with a particular focus on challenging behaviour in children with a learning disability in the education sector.

1.6 Challenging Behaviour in Children with a Learning Disability

Challenging behaviour is often reported as prevalent in the learning disability population and although studies indicate varying rates, it is clear that a significant minority of people with a learning disability display challenging behaviour (Jones & Eayrs, 1993). Harris et al. (1996) found that the most frequently reported challenging behaviour displayed by children with a severe learning disability, as reported by their teachers, were physical aggression, non-compliance, disruption and hyperactivity. Accurate prevalence rates for these types of behaviours, however, depend on the criteria used to define the behaviour. For example, Kiernan & Kiernan (1994) found prevalence rates of 2% for 'extremely difficult or difficult behaviour' and 14% for 'moderately or least difficult behaviour' in children with a severe learning disability. Hogg et al. (1987) used the descriptions of specific challenging behaviours to ascertain prevalence rates such as 'engages in sexually inappropriate behaviour' and 'makes disruptive noises or sounds'. The respective prevalence rates were 6% and 43%. It is, therefore, important to remember that like the term 'learning disability', 'challenging behaviour' is a social construct (Oliver et al., 2003). So while it is recognised that challenging behaviour is displayed by a significant minority of people with a

learning disability, the level of learning disability and definition of challenging behaviour are major confounding factors in previous research results.

The following definition of challenging behaviour by Emerson (1995) is widely used in the learning disability literature and will be used for the purposes of this thesis;

“...culturally abnormal behaviour(s) of such intensity, frequency or duration that the physical safety of the person or others is likely to be placed in serious jeopardy, or behaviour which is likely to seriously limit or deny access to and use of ordinary facilities.”

(Emerson, 1995: 4-5)

According to the ASL act, there is a legal obligation for local authorities to educate children in a mainstream setting and provide the additional support required for this to happen. Any behaviour that jeopardises the child's placement in a mainstream class is considered by the above definition to be challenging behaviour and consequently creates some legal difficulties for the school. If a child's behaviour jeopardises their educational placement in a mainstream setting, then the local authority is responsible for addressing this. Research suggests that challenging behaviour in educational settings can act as a major source of stress for teachers (Male & May, 1997a; Male & May, 1997b), can restrict the pupils' access to their curriculum and increase the chances of exclusion (Male, 1996). It is, therefore, important that teaching staff working with children with a learning disability have a good understanding of challenging behaviour and its management in order to promote the chances of a child's educational success in a mainstream setting and to minimise the distress caused and potential risk to the child, the teacher and other children in the classroom.

The majority of research into the psychological factors that contribute to challenging behaviour has taken a functional approach, with its origins in learning theory (Xeniditis et al., 2001). The emphasis on a functional approach to challenging behaviour involves being able to accurately identify a particular behaviour and ascertain what purpose the behaviour serves for the individual. When considering staff knowledge about challenging behaviour one has to inevitably consider staff attributions and their beliefs about the function of challenging behaviour.

1.7 Knowledge and Attributions About Challenging Behaviour

Over the last decade research into the beliefs that staff hold about challenging behaviour displayed by people with a learning disability, such as self harming behaviours and aggression, has attracted some interest, particularly within care staff teams (e.g. Hastings et al., 1997; Hastings, 1996). This has been in part due to an interest in understanding how staff's beliefs about challenging behaviour impact on staff performance (Hastings & Remington, 1994a). The relationship between a person's beliefs and their consequent behaviour has been supported by both behavioural and social cognition models, for example, The Theory of Planned Behaviour (Madden et al., 1992; Ajzen, 1991). This theory states that a person's beliefs form part of their behavioural intention and this intention is theorised to be the best predictor of behaviour. The belief that a staff member holds about why a certain behaviour occurs can, therefore, be linked to their behavioural patterns or responses towards that person. Such is this link that causal models often play a central role in training staff members about working with challenging behaviour (Morgan & Hastings, 1998). It is, therefore, important that when considering teaching staff's knowledge about challenging behaviour one also considers their attributions about the causes of the behaviour in order to investigate the link between knowledge, beliefs and future behaviour. It may then be possible to gain a better

understanding of the way in which teachers respond to challenging behaviour in children with a learning disability.

There is limited research into teaching staff's knowledge about challenging behaviour. Kiernan & Kiernan (1994) considered teachers' knowledge about challenging behaviour in children with a severe learning disability and found that the most common explanations given for challenging behaviour were (in order of frequency); attention seeking, demand or task avoidance, communication problems, stress, interference with routine and provocation. The authors included 68 schools in England and Wales for children with 'severe learning difficulties' in their study, therefore, it is not possible to apply these findings to mainstream settings. In addition, the definition of severe learning difficulties is not exclusive to children with a learning disability and this again has implications for the interpretation of the findings with regards to this study.

Morgan & Hastings in 1998 undertook an investigation of teachers' understanding of, and beliefs about challenging behaviour in children with a learning disability. Twenty-two teachers who had been specially trained to work with children with a learning disability and thirty-eight classroom assistants who had no formal qualifications participated. The authors included two case vignettes that detailed a child displaying challenging behaviour where the function was either task avoidance or attention seeking. Participants were asked to answer questions related to the behaviour, including identifying a possible function. The results showed that few staff were able to accurately identify the causes of the challenging behaviour in the case vignettes; 33% correctly identified the function of task avoidance while only 10% correctly identified the attention seeking function. No significant differences were found between qualified teachers and classroom assistants in relation to the identification of task avoidance as the function of the behaviour in one of the case vignettes,

although qualified staff did make more accurate attributions about the function of the attention seeking behaviour. This study was undertaken within schools for children with a learning disability so the findings may not be directly comparable to mainstream settings.

The importance of the type of causal attribution made in future helping behaviour by care staff towards adults who display challenging behaviour has been highlighted throughout the research, specifically in Weiner's attributional model of helping behaviour (Weiner, 1980; Weiner, 1993). Within this model it is predicted that care staff's attributions about challenging behaviour are associated with their emotional responses to that client. These responses effect the consequent helping behaviour of the staff member towards the person displaying the behaviour. Research using this model has shown that if staff make attributions that the behaviour is internal and controllable to the client, that is they make an attributional error (Heider, 1958), then they are more likely to feel anger and, therefore, less likely to help or offer support to the client who is displaying the challenging behaviour (Dagnan et al., 1998). Equally, if the staff member makes attributions that the behaviour is out of the client's control and due to external influences then they are more likely to feel sympathy and thus, more likely to offer assistance to the client. More positive attributions, therefore, are those that are considered to be external, uncontrollable, unstable and not personal to the client. This research reinforces the idea that staff behaviour is inextricably linked to their attributions about challenging behaviour (Noone et al., 2006).

Weigel et al. (2006) conducted a study examining the relationship between expressed emotion towards and staff attributions about adults with a learning disability who display challenging behaviour. The authors asked 15 staff members who worked with adults with a learning disability to provide ratings about a client who displayed challenging behaviour and one who did not. The

authors then interviewed the participants and scored their interview according to levels of expressed emotion. The findings of this study suggest that working with an adult with a learning disability who displays challenging behaviour was associated with attributions that the behaviour was internal to and controllable by the client. They also found a significant association between working with a client who displays challenging behaviour and high levels of expressed emotion and critical comments. Importantly they found a significant association between high levels of expressed emotion and internal and controllable attributions made about challenging behaviour. The authors suggest that this has negative implications for treatment provision. Several methodological difficulties exist with this study and findings must be viewed in light of these. Only one example of a client with challenging behaviour was used in this study and no data was collected on the type, frequency or severity of the behaviour displayed. In addition, the study involved an adult with a learning disability and is, therefore, not directly applicable to the field of children with a learning disability. The number of participants in this study (N = 15) mean that the results may be underpowered (Cohen, 1992). The authors did not consider other variables, which have been shown to affect staff attributions, such as experience of working with people with a learning disability (Oliver et al., 1996; Berryman et al., 1994).

Male (2003) undertook a study investigating the perceptions of teachers who worked with children with a severe learning disability about challenging behaviour. Seventy teachers from 12 schools for children with a severe learning disability completed the questionnaire devised for the purposes of the study, which, in part, aimed to ascertain if the attributions that staff held about challenging behaviour had an impact on the consequent management strategy used. Participants were asked to describe a behaviour displayed by a pupil, indicate a possible cause for the behaviour and indicate the strategies used to manage the behaviour. Male found that the most frequently cited

challenging behaviour was aggression (51% of all cited behaviour) and the most likely causal attribution for aggression was 'communicating need'. For those teachers that described an episode of self-injury the most common causal attribution was 'stimulation'. The most commonly applied strategies for the management of aggression and self-injury were 'diffusion' and 'intermittent restraint' respectively.

Male found that participants with a teaching qualification and additional training or experience in relation to working with children with a learning disability were significantly more consistent in their management of challenging behaviour than less experienced / less trained teachers. These findings suggest that the attributions that teachers hold about the function of challenging behaviour in children with a learning disability has an impact on the way in which they intervene, thus supporting previous research that suggests attributions can affect future behaviour (e.g. Hastings & Remington, 1994a). The study, however, did not use a standardised or validated questionnaire, therefore, the results need to be interpreted with caution and further investigation into this relationship may be warranted.

There have been a number of attempts to develop a standardised measure of attributions and to develop themes that help identify the type of attribution being made. The Attribution Style Questionnaire was developed by Peterson et al. (1982) and several variations of this questionnaire have been used throughout research in the field of attributions about challenging behaviour displayed by people with a learning disability (e.g. Cottle et al., 1995; Weigel et al., 2006). The original questionnaire asked participants to rate a behaviour along a number of scales, which considered the type of attribution (theme) being made. The scales considered whether the attribution being made was internal or external, personal or universal, and controllable or

uncontrollable. This method of coding attributions can be found throughout the research and the Leeds Attributional Coding System (LACS) (Stratton et al. 1991) adopts these themes as well as the additional themes of stable and unstable. Noone et al. (2006), who considered care staff's attributions about challenging behaviour in adults with a learning disability, endorsed an amended version of the LACS (see Brewin et al., 1991) and the themes used are defined in Table 3 (Appendix 3). Given the substantial evidence base for the use of these themes in the coding of attributional statements this study will adopt a similar system.

An alternative method of measuring attribution was devised by Hastings et al. in 1995 and was further developed in 1997 to become the Challenging Behaviour Attribution Scale (CHABA) (Hastings, 1997b). This is a 39 item-scale with statements relating to five causal models: learned behaviour, medical/biological factors, emotional factors, aspects of the physical environment and self-stimulation (Appendix 4). The questionnaire is concerned with how staff members who work with challenging behaviour apply causal models to different types of challenging behaviour in certain situations. These causal models, while different to those described by authors like Brewin (1991) and Peterson (1982) have provided rich information about the nature of staff's attributions about challenging behaviour (Hastings, 1997b). The current study will also utilise these causal models.

Research in both learning disability and education services about challenging behaviour in children with a learning disability highlights the presence of misattributions about the reasons why children with a learning disability display challenging behaviour (Morgan & Hastings, 1998; Male, 2003) and reinforces the importance of attributions in contributing to staff behaviour towards those who display challenging behaviour (Male, 2003; Weigel et al., 2006).

Hastings (1997a) argues that there is a need to address these issues, stating that;

“...improving staff knowledge about approaches to understanding and treating challenging behaviour may be an appropriate technique for changing staff beliefs.”

(Hastings, 1997a, p786.)

The area of staff training in relation to working with learning disability and challenging behaviour will be discussed later.

An additional area that impacts on successful inclusion and behaviour towards children with a learning disability and challenging behaviour is staff attitudes towards inclusion.

1.8 Attitudes

There is a lack of clarity about the exact nature and purpose of attitudes, which makes research in this area difficult. It is thought that attitudes are formed by many factors including personal experience, observation of others and emotional processes, and that attitudes have a direct influence on a person's behaviour (Baron & Byrne, 1991). While definitions vary, the one proposed by Fitzsimmons & Barr (1997) captures many of the common elements described by researchers (Fazio, 1986; Smith et al., 1956; Eagly & Chaiken, 1993). Here an attitude is viewed as a “predisposition to think or act in a particular way in response to a specific stimulus.” (p.58)

Changes in terminology relating to people with a learning disability have often been as result of political correctness and shifting social perceptions (Reid, 1997), which are likely to both influence and reflect public attitudes. The recent social and political drives that have promoted the inclusion of children with a learning disability in mainstream settings may have also resulted in the

development of attitudes about this move, both positive and negative. If teachers hold negative attitudes towards the inclusion of children with a learning disability in mainstream classrooms this may affect their behaviour towards the child and have a consequent effect on the child's educational experience.

The following section will examine the research considering attitudes towards the inclusion of children with a learning disability in mainstream classrooms including attitudes towards the principles of inclusion generally.

1.8.1 Attitudes Towards Inclusion

It is proposed that professional attitudes can both help to facilitate or hinder the implementation of policies, especially those that are viewed as controversial (Hastings & Oakford, 2003). One of the main factors in the successful inclusion of children with additional needs in mainstream classrooms is teachers' attitudes (Avramidis et al., 2000; Chow & Winzer, 1992).

During the 1980s a number of studies were undertaken to ascertain the attitudes of head teachers (Center et al., 1985) teachers (Center & Ward, 1987) and educational psychologists (Center & Ward, 1989) towards the principles of inclusion in Australia. The data from these studies was summarised by Ward et al. in 1994. They found that, while 80% of those involved in the studies agreed that it was necessary to integrate children with disabling conditions in mainstream classrooms, attitudes towards children with differing disabling conditions varied. Children with aggression, a 'moderate intellectual disability' or sensory/physical disabilities were 'not usually' considered suitable for mainstream education by participants. Attitudes towards those children with less disabling conditions (e.g. mild sensory impairments, mild intellectual disability and poor

attention span) were much more positive in regards to suitability for mainstream education. The nature of the disability, the extent of the child's educational problems and the professional background of the respondent were all found to be significant variables.

Specifically, the study conducted by Center & Ward in 1987 indicated that mainstream teachers were only positive about including children whose difficulties were not likely to require additional management or instructions from the teacher. This suggests that teachers would prefer not to have children with a severe learning disability in their classroom given that they would be likely to need 'extensive and pervasive levels of support' (AAMR, 2002). While, research suggests that educational practices in Australia and the U.K share some similarities (Thomson et al., 1988), it is unclear to what extent these results can be generalised to the U.K. These studies were also conducted when the principles of inclusion were less dominant and, therefore, attitudes at this time may not be representative of current attitudes.

More recent research has found that teachers express more positive attitudes towards the inclusion of children with additional or special needs in mainstream settings (Scruggs & Mastropieri, 1996) and in a study by Stoiber et al. (1998) teachers were found to express more positive attitudes than parents themselves. The factors that influenced these attitudes were similar to those identified in the earlier research. The key child variable was in relation to the severity of the child's needs, such that the less severe the child's disability, the less demanding they are perceived to be and the more positively teachers viewed their inclusion. Children with a learning disability in particular have been identified as being rated less positively by teachers along with children with emotional and behavioural problems (Avramidis et al., 2000). Williams & Algozzine in 1979 found that the main reason for teachers hypothetically refusing to teach a child with special

educational needs was due to the child taking too much time away from other children in the class and also due to a lack of confidence in their own ability to teach the child. Fifty five percent of the 267 mainstream teachers who participated in this study said they would not volunteer to teach a child with 'educable mental retardation', compared to a 19% rejection rate of children with a physical disability and a 37% rejection rate of children with learning difficulties. The two main reasons given by teachers for including children with special educational needs in their mainstream classes were confidence gained from having specialised support services and having positive experiences of working with children with special educational needs. While this latter study is somewhat dated it appears to reflect some of the findings in more recent studies.

A study by Avramidis et al. in 2000 looked at the attitudes of 111 PGCE student teachers and 24 undergraduate B.A students towards the inclusion of children with special educational needs in mainstream classrooms. A child with a severe learning difficulty was viewed more positively by student teachers than a child with emotional and behavioural difficulties, in that participants indicated that the latter would cause them more stress and more concern in the mainstream classroom. The overall attitudes expressed by participants towards the concept of inclusion of children with special educational needs was summarised as being 'positive'. The authors recognised the limitations of their study in regards to using a new instrument and the fact that the questionnaire did not allow for a differentiation between attitudes for children with different types of special needs.

Assessing attitudes towards the inclusion of children with a particular disorder or condition in mainstream classrooms, for example children with a learning disability, rather than children with the general label of 'special educational needs' would overcome this latter methodological difficulty.

1.9 Factors Affecting Attributions, Confidence and Knowledge

Research has identified that, at times, knowledge about learning disability and challenging behaviour can be poor and attributions about challenging behaviour can be negative and as a consequence an interest exists in establishing what factors affect knowledge, including attributions, and confidence about working with people with a learning disability.

The following section will consider the impact of experience and staff training on attributions about and confidence and knowledge of children with a learning disability.

1.9.1 Previous Experience/Contact with People with a Learning Disability

The Audit Commission (2002) claims that in order to make inclusion work it is essential that teachers develop the necessary skills to teach children with SEN, adding that confidence will develop as a consequence of skill development. Teachers also claim that they do not have the sufficient experience of working with children with SEN to feel confident about including them in mainstream classrooms (Jobling & Moni, 2004). These both suggest that an interaction exists between experience and knowledge as well as experience and confidence.

Previous research in both the health and education sector has highlighted the potential influence of previous experience or contact with people with a learning disability on subsequent levels of knowledge and confidence about working with people with a learning disability and challenging behaviour. This relationship may appear to be an obvious one; that a person will gain more knowledge and confidence as a consequence of the relevant experience they have, however, the

research specifically investigating this link in the field of learning disability is limited. A brief summary is, therefore, provided from what relevant research is available.

In a study by McKenzie et al. (2004) 20 student nurses training to be learning disability nurses rated their knowledge and confidence about working with people with a learning disability. Third year students with more learning disability nursing experience than first and second year students, rated themselves as having more knowledge about learning disability and the management of challenging behaviour than first and second year students respectively. There were no differences, however, found in participants' self-rated confidence. These findings suggest that the student nurses with more direct experience of working with the learning disability population felt more knowledgeable but not more confident than their less experienced colleagues. The measures used were self-rated knowledge and self-rated confidence and actual knowledge was not assessed in a more objective or formal way. While this study was undertaken within the health sector, it focused on the learning disability population, which similar research in education fails to do, preferring to focus on more generic populations such as SEN (e.g. Johnson & Cartwright, 1991).

Johnson & Cartwright (1991) investigated whether the addition of experience in a training program for teachers improved their knowledge about mainstreaming to a greater extent than training without experience. They compared two training courses; one designed to provide information about mainstreaming children with mild to moderate handicaps and one aimed at providing experience of working with handicapped children in a variety of settings. The latter of these courses provided supervised activities with handicapped children in a variety of settings (e.g. camps, schools, institutions) where the participating teacher was assigned activities similar to

those they would be undertaking in a classroom. The findings suggest that the experienced based course was just as effective at increasing knowledge about mainstreaming as the information based course supporting the notion that experience is an influential factor in improving knowledge. These findings support previous research, which proposes that direct experience is an important part of training and, therefore, an important part of improving knowledge (Ainscow, 1999). This study took place in the United States and included children with both physical and cognitive impairments, therefore, was conducted in a different country and with a wider population of disabled children than this study.

Golder et al. in 2005 describe some developments in the Post Graduate Certificate in Education (PGCE) programme, which is the certificate required in order to undertake a career in teaching in the UK. The development involved trainee teachers working intensively with one child with special educational needs to enhance their assessment and teaching skills and their conceptions about the child's teaching need. It was also hoped that this one-on-one experience would help create positive attitudes about educating such children in mainstream settings.

This adaptation was evaluated after running for one year, in part by asking the student teachers involved what they had learnt about the SEN framework, the individual pupil they had been involved with and about adapting teaching support for that pupil. Approximately 80% of student teachers and their tutors reported that they felt the exercise had improved their knowledge, understanding and awareness of issues within the area of special educational needs such as the identification of pupils with special educational needs, differentiation, understanding individual needs and planning for pupils with special educational needs. This initiative was, therefore, viewed

as a positive addition to the basic teacher-training program. This reported improvement in knowledge, however, was not assessed in an objective way and further investigation into the exact nature of the changes in knowledge would have been valuable. No pre or post measures were taken to formally assess changes in knowledge. Also the initiative failed to address the issue that the term special educational need covers a large spectrum of difficulties and, therefore, need.

Experience or contact with people with learning disability has also been shown to positively affect attributions (Oliver et al., 1996; Berryman et al., 1994) and attitudes towards people with a learning disability (Slevin, 1995; Slevin & Sines, 1996) as well as the above evidence that it affects knowledge. Experience or contact with people with learning disability may, therefore, have an impact on a number of variables that directly impact on practice. Further investigation into working with children with a learning disability in the education sector is necessary to establish the interaction between experience, knowledge, confidence and the impact on consequent teaching practice.

1.9.2 Staff Training

As a result of the historical, political and legislative drives noted previously, teaching staff in mainstream settings are now more likely to have children with a learning disability in their classroom (e.g. Education (Additional Support for Learning) (Scotland) Act, 2004; The Warnock Report, 1978). Until recently, however, there was no compulsory training provided to mainstream teachers with regards to supporting children with SEN and there is currently no specific compulsory training on the actual disorders considered under the umbrella term of SEN. Consequently teachers may be supporting children with a learning disability in their classroom with no additional

or specialist training in this area. Student teachers undertaking the PGCE course now receive some training on working with 'special educational needs', which by definition covers a large range of children with varying presentations and need, some of which will be complex and require a specialist knowledge of their condition or disorder. If teachers have not received the necessary or appropriate level of training then there may be implications for the ability of teachers to meet their duty of care for children with a learning disability that they teach, as well as meeting their legal and moral obligation to know about the nature of their difficulties (Ward, 1984).

The research outlined previously suggests that staff working with people with a learning disability, are often found to be lacking in knowledge with regards to the defining features of a learning disability (McKenzie et al., 1999a; McKenzie et al., 1999b; Barr, 1990), and knowledge about challenging behaviour and its management (Hastings & Remington, 1994a; McKenzie et al., 1999c). In addition, staff behaviour has been shown to impact on the future occurrence of challenging behaviour (Hastings & Remington, 1994a). Hastings et al. (1997) suggest that improving staff knowledge about challenging behaviour may have a positive impact on staff beliefs and attributions. Unfortunately, there is a relative lack of research considering the impact of staff training on teaching staff's knowledge, attitudes or beliefs about children with a learning disability, attributions about challenging behaviour and attitudes towards inclusive education.

The research that does exist, however, implies that measures should be taken to support teachers in understanding about the needs of children with a learning disability in order to promote their educational success in mainstream classrooms and improve their quality of life (Rose, 2001).

Teaching staff have been shown to consistently express concern about their lack of professional experience of working with children with special educational needs and to express the need for additional training to address the gaps that exist in their knowledge (Rose, 2001). Comments from teachers like “I think specific problems needs specific training”, “ I haven’t had any training so I don’t feel prepared” (p.152) were identified by Rose (2001) in a study investigating teachers perceptions of the conditions required to successfully include children with special educational needs in mainstream classrooms. Similar findings exist in relation to social care staff who work with people with a learning disability, where staff members report that they did not receive training for working with people with a learning disability and that any training they did receive was inadequate (Smith et al., 1996; McVilly, 1997).

Avramidis et al. in 2000 asked teachers what would be necessary to make their responses to inclusion more positive. Sixty percent of the 135 participants said that more knowledge of different disabling conditions and different strategies would affect their feelings about inclusion in a positive way. A third said that they would need more training on the management of challenging behaviour and emotional difficulties.

These concerns are perhaps validated by the absence of any significant training about working with children with specific disorders (e.g. autism, learning disability, ADHD) in the basic initial teaching training course and while some attempts have been made to introduce training about ‘special educational needs’ generally, it has been argued that inclusion will fail unless changes are made to address this gap in teacher training (Garner, 2000). The Audit Commission report in 2002 stated that;

“..unless we develop the expertise in schools then we can’t progress inclusion...” (p.36)

The findings of this report, in part, identified a need to develop the skills and the confidence of staff in mainstream schools in relation to working with children with special educational needs. The report also adds the point that providing educational support to children with SEN is a core part of teachers’ responsibilities and not an ‘add-on’. The Warnock report in 1978 recommended that all initial teacher training should include an element of training about special educational needs.

So while it is well recognised that teachers have a significant training need in relation to working with children with special educational needs, there is also a recognised lack of opportunities for teaching staff to acquire this knowledge. There is limited literature about the need to provide training for teachers to work with particular groups of children whose difficulties fall into the broad category of ‘special educational needs’ (e.g. learning disability, autism, ADHD etc) and while training on special educational needs is important, the specific and individual needs of children in this group vary greatly and are often complex in nature.

Staff training has been shown to improve both knowledge and practice in staff teams who work with people with a learning disability and challenging behaviour (McKenzie et al., 2000; Berryman et al., 1994; Allen et al., 1997) and while it is recognised that training alone does not always affect change in regards to long-term practice (Ziarnik & Bernstein, 1982) it certainly forms part of a larger package aimed at changing staff behaviour by improving their knowledge.

In regards to working with children with a learning disability in mainstream settings it has been proposed that further training for teaching staff with regards to the needs of such children would

promote the success of inclusion (Audit Commission, 2002). In relation to promoting positive attitudes towards inclusion, Hastings et al. (1996) suggest that further investigation into the methods that impact on teachers' attitudes towards inclusion is warranted.

While the above section considers the notion that staff training is one way of addressing the gaps in knowledge that exist amongst teaching staff in relation to children with a learning disability, the following section will consider the impact that staff training has been shown to have on staff's knowledge and practice.

1.9.2.1 Impact of Staff Training

A significant amount of research has considered what impact staff training has on care staff teams who work with adults with a learning disability who display challenging behaviour (e.g. McKenzie et al., 2000; Taylor et al., 1996; Allen et al., 1997). Staff training has been shown to affect knowledge, practice, confidence and attitudes in health and social care staff across different time periods (McKenzie et al., 2000; Taylor et al., 1996; Allen et al., 1997). There is, however, no equivalent research focusing on teaching staff who work with children with a learning disability. The following section will, therefore, review the research in relation to staff training in health and social care settings, while recognising that it is not always possible to extrapolate directly from the results.

The type of training available to health and social care staff can vary from time limited training courses, both informal and formal, (McVilly, 1997; McKenzie et al., 2000) to long term training (e.g. Multi-Element Behaviour Support: A Short Course described by Grey in 2002) to training that provides ongoing input and monitoring for staff (Taylor et al., 1996). The cost implications for long term, ongoing staff training and support may often dictate which training package is utilised. While

there is evidence that staff training changes knowledge and practice in both the short (e.g. McKenzie et al., 2000) and long term (e.g. Allen et al., 1997), there also exists evidence that shows staff training alone is not sufficient to change practice in the long term (e.g. Cullen, 2000) and is not always cost effective (e.g. Ziarnik & Bernstein, 2002).

1.9.2.1.1 Impact on Knowledge

McKenzie et al. (2000) showed that a one-day training course on challenging behaviour significantly improved knowledge in 59 health and social care staff up to one year post training. McKenzie et al. (2004) also considered the training needs of 32 student nurses with regards to the management of aggression in learning disability services and the impact of training on physical restraint and the assault cycle on the confidence of the participants. While the study showed that 58% of participants had been assaulted while at work, 42% had not received any training in physical training techniques. The authors also demonstrated a significant increase in self-rated confidence of participants after the training, but did not report the validity and reliability of the questionnaire used in the study. In addition, the sample size was small and the study was conducted within the health and social care sector so the results can't be generalised to the education sector.

1.9.2.1.2 Impact on Attributions

With regards to the impact that staff training has on care staff's causal attributions about challenging behaviour and consequent staff behaviour, the research is somewhat conflicting. Dowey et al. (2007) investigated the impact of a 1-day training workshop on care staff's causal attributions about challenging behaviour in adults with a learning disability and found that after training participants selected significantly more behaviourally correct casual attributions about

clients' challenging behaviour than prior to training. The authors conclude that it is possible to affect the causal attributions that staff use to explain challenging behaviour with brief training. This study did not employ a control group and only considered attributions about self-injurious behaviour, therefore, not capturing attributions about the other types of challenging behaviour identified in the learning disability population (e.g. Harris, 1993). The authors did not assess whether changes were maintained over time as there was no follow-up data collected.

The finding that training can positively affect care staff's attributions about challenging behaviour was also shown by McGill et al., (2007). The authors used the CHABA (Hastings, 1997b) and the Self-Injury Questionnaire (Oliver et al., 1996) to assess changes in the types of attributions made by students undertaking a diploma aimed at increasing staff competence in the management of challenging behaviour. Results showed that participants were less likely to attribute challenging behaviour to emotional factors. Hastings (1997b) also found a significant decrease in the use of emotional related attributions after training. McGill et al. (2007) failed to employ a control group and instead relied on within subject comparisons across time. They also raise the important point that it is difficult to relate the findings of attribution measures to actual staff performance using measures like case vignettes.

In contrast to the above findings Lowe et al. (2007) found that staff training had little effect on changing staff attributions about challenging behaviour in the longer term. They considered the impact of an accredited course in positive behaviour support on the attributions of qualified nurses and nursing assistants. The training comprised of 80 hours teaching across 10 days developed by The Directorate of Learning Disability Services. Results showed significantly improved scores on the CHABA immediately after the completion of the training, however, these gains were not

maintained at 1-year follow-up. This suggests that training only has very short-lived effects with regards to changing attributions about challenging behaviour.

It is clear from the research that training does not consistently improve the types of attribution made about challenging behaviour and the gains that have been highlighted are not always maintained in the longer term. Extrapolating from this research, which was conducted in health and social care setting, with regards to this thesis is problematic. It is also difficult to compare these studies given the variation in the types of staff training applied to different populations. There is a clear gap in similar research with teaching staff.

1.9.2.1.3 Impact on Confidence

Murray et al. (2000) investigated the effect of training on levels of confidence reported by social care staff working with clients with a learning disability and challenging behaviour. Only 20% of the 14 female participants felt confident about dealing with incidents of aggression, compared to 50% of the 8 male participants. This study also showed that having previous training in the management of challenging behaviour had no effect on feelings of confidence in the females, whereas the males were significantly more likely to report feeling confident about managing challenging behaviour if they had received training. The number of participants involved in this study raises concerns about statistical power (Cohen, 1992). In addition, no information was gathered about the content of any previous training received by participants, which may not have been comparable raising the possibility that confounding variables within the training might have influenced the results.

A significant increase in student nurses' confidence after training about the use of physical intervention with people with a learning disability who display challenging behaviour has also been demonstrated (McKenzie et al., 2004). This study also showed that while males were significantly more confident about managing challenging behaviour prior to training than females, this difference disappeared after training and all participants rated their confidence as significantly greater than before training. Participants in this study (student learning disability nurses) cited that the main benefit of the training was increased confidence about using physical restraint techniques. This study lends some support to the positive relationship between training and confidence with the recognition that it was undertaken within the health sector and training focused on teaching actual skills rather than giving information. The latter of these points especially make it difficult to extrapolate the findings for the purpose of this study

Lowe et al. (2007) measured confidence in 274 nurses and nursing assistants about coping with patient aggression prior to and after a 10-day training course devised by the Directorate of Learning Disability Services. They used two questionnaires to measure confidence in managing aggression at work and while both measures indicated a significant increase in confidence immediately after training, one of the measures indicated that this significant increase was not sustained at 1-year follow-up, while the other did. The results, therefore, suggest that an intensive 10-day training course improved confidence at least in the short term but sustained changes in confidence were dependent on the measure used and require further investigation. The participant group consisted of qualified learning disability nurses and the training package was a taught course, therefore, different to those used in this study.

Unfortunately, there is no research about the effect of training on confidence in the field of learning disability or challenging behaviour in the education sector.

1.9.2.1.4 Impact on Practice

As mentioned earlier in this section, while there is evidence to support the use of staff training as an effective means of improving actual practice (e.g. Allen et al., 1997), there also exists concerns about the ability of staff training to sustain a change in practice over the longer term (e.g. Cullen, 2000). The following section will outline current concerns about the use of staff training as a means of promoting change in practice, with a particular emphasis on how this applies to teaching staff.

Allen et al. (1997) considered the impact of staff training on changing actual practice in an in-patient unit for adults with a learning disability. Practice prior to the training tended to be inappropriate physical restraint and the training focused on the use of pro-active management strategies. The final training program included; understanding aggressive incidents, primary prevention (e.g. modifying environmental or individual setting conditions associated with the challenging behaviour), secondary prevention (responding safely to early indicators of challenging behaviour), reactive strategies and training on being aware of emotional response to challenging behaviour. Training methods included formal classroom sessions, role-play and practice of physical intervention.

Over the study's 5-year period there was a significant decrease in the number of incidents of challenging behaviour and a significant decrease in the number of staff injuries, but no significant decrease in the use of reactive strategies. This study did appear to demonstrate that a longer term

approach to staff training can be effective and supports the notion that staff training programs may need to be comprehensive and ongoing in order to achieve any kind of long term change in practice (Cullen, 2000). There may, however, be concerns about the cost-effectiveness of this approach given that the numbers involved in the study, by the authors' own recognition were very small and not all their hypotheses were upheld.

Like the study outlined above, other studies have shown the benefit of longer-term training packages in improving actual practice (e.g. Tait & Dunlop, 2005), however, there are issues regarding exactly how staff training should be used to positively impact practice. Cullen outlines the argument for and against the use of staff training in his review of services for people with challenging behaviour (2000). Cullen's previous work (e.g. Cullen, 1988; Cullen, 1992) has shown that staff training is not particularly powerful as a factor for influencing change in practice in staff teams. He argues that it is difficult to achieve significant changes in practice that are sustained over time when working with difficult populations like people with a learning disability who display challenging behaviour and that different approaches and attitudes to the use of staff training are needed. It has been proposed that prior to intervening with training packages staff behaviour should be observed in order to determine if the observed behaviour is adequate and if the staff have the necessary skills to undertake their job efficiently. Only then should staff training be considered as an intervention for improving knowledge and practice (Reid et al., 1989).

Amidst the argument there is a clear consensus that prior to undertaking any intervention to improve knowledge and practice it is vital to be clear about what it is that staff are expected to be doing within their practice before assessing whether they have the necessary skills to do it. Staff training is promoted when these assessment criteria are met (Cullen, 2000). Current legislation

outlines the expectations of teaching staff with regards to the inclusion of children with SEN (e.g. Special Educational Needs & Disability Act 2001 and The Education (Additional Support for Learning) (Scotland) Act (2004)). Such legislation states that all children, regardless of ability or need, should undertake their education in a mainstream setting and it is up to the educational authority and its staff to provide this. In addition to this, teaching staff's duty of care dictates that they should know what a learning disability is and its defining characteristics (Ward, 1984). The expectations of teaching staff is, therefore, clearly outlined, however, previous research in other areas (e.g. McKenzie et al., 1999; McKenzie et al., 2000) and terminology differences between health and education sectors suggest that they may not have the necessary work skills to meet these expectations.

So while previous research suggests that staff training is often unsuccessful in sustaining a change in practice in staff groups who work with people with a learning disability and challenging behaviour (Cullen, 1988; Cullen, 1992), this can be due to inappropriate assessment of staff needs and a failure to look at management and organisational issues first (Reid et al., 1989; Cullen, 2000). When these issues are considered then staff training may well act as a successful means of addressing gaps in staff teams' work skills.

1.9.2.1.5 Impact on Attitudes

With regards to the effect of staff training on attitudes towards inclusion, Dickens-Smith (1995) showed from a literature review that training about inclusion is largely successful in improving teaching staffs' attitudes towards inclusion. Dickens-Smith then undertook training specifically focused on inclusion with a group of both mainstream and SEN teachers and found that it had a positive impact on changing attitudes in both groups. Jobe (1996) also found a significant

relationship between in-service training and positive attitudes towards inclusion in 500 teachers across the United States. Both these studies, while suggesting that staff training can improve attitudes towards inclusion, were undertaken in the United States, where the education system differs to that of the U.K and, therefore, direct extrapolations are not possible. The type of training conducted and the types of measures used to assess attitudes towards inclusion varied throughout the studies and these variables are significant when attempting to ascertain ways to change attitudes.

Didactic courses undertaken at university level which are often designed to prepare teachers to work with children with SEN have been shown consistently to have little impact on changing attitudes towards disabilities and inclusion (Forlin et al., 1996; Hastings et al., 1996; Tait & Purdie, 2000). It has been suggested that combining formal didactic learning and direct contact with people with a learning disability is the most effective way to change attitudes (Ford et al., 2001). Campbell et al. (2003) considered the impact of combining formal instruction throughout the academic college term with direct experience with children with Down's syndrome on attitudes toward the inclusion of children with Down's syndrome in mainstream classrooms. Significant improvements were found in participants' attitudes, including a decrease in the number of participants who thought that inclusive education would be detrimental to the child both educationally, socially and emotionally and also detrimental to other children. The combined approach to training using both instruction and experience was deemed a success in terms of improving attitudes, however, the training took place over an entire academic term thus not ruling out the possibility that other factors may have affected attitudes during this time.

The research, although undertaken in different countries and with a variety of measures of attitude and training methods, does lend support for staff training as an intervention for improving teaching staff's attitudes towards inclusive education.

Given that staff training can be conducted in a short period of time (e.g. 1-day training event) at a relatively small cost it is understandable that many researchers are interested in ascertaining if this is an effective means of changing knowledge, confidence or practice before investing in more expensive or time consuming training packages (e.g. Allen et al., 1997). It is also clear that further research needs to be conducted in the education sector in the UK with regards to training teaching staff in particular areas of special education need (e.g. learning disability), with a view to improving practice and attitudes.

1.10 Summary

The needs of children with a learning disability are often complex and people working with them often face challenges in managing the complexities of their presentation (including challenging behaviour). The drive to educate children with a learning disability in mainstream classrooms places a responsibility on teachers to understand these children's' needs in order to work with them appropriately and enhance their educational success. There is also a responsibility to be aware of the increased prevalence of challenging behaviour in this population and the factors, which can affect the occurrence of such behaviour. While research indicates a low level of knowledge in health and social care workers about what constitutes a learning disability and challenging behaviour, very little has been done to investigate teaching staff's knowledge about both learning disability and challenging behaviour. Research in this area would also help to establish if the terminology differences between health and education sectors is problematic.

The attitudes and attributions that staff hold about the reasons why a person displays challenging behaviour can have implications for their own future behaviour and can increase the occurrence of challenging behaviour in others. Attitudes towards the inclusion of children with special educational needs (including children with a learning disability) in mainstream classrooms has been reasonably well investigated and there remain concerns about the negative attitudes that teachers hold about this policy and the implications for their behaviour towards children who are being included in their classrooms (e.g. children with a learning disability)

The research reviewed above suggests that further investigation into the knowledge that teachers hold about working with children with a learning disability and challenging behaviour is warranted. These factors need to be investigated as a way of addressing any barriers that exist to successful inclusion.

While questions remain about the impact that staff training has on future practice, it has been shown to be an effective way of improving people's knowledge and attitudes in a cost effective manner. The research suggests that there is a significant unmet need in relation to training teachers about working with children with a learning disability, who may display challenging behaviour.

1.11 Aims

The initial aims of the current study are to investigate the knowledge held by teaching staff in relation to working with children with a learning disability and challenging behaviour in primary

school settings and to assess their attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream classrooms.

The primary aim of the study is to investigate the impact that a half-day training event has on the knowledge ascertained in the initial part of the study and also on teaching staffs' confidence about working with children with a learning disability and challenging behaviour.

The relationship between the amount of experience that teaching staff have of working with children with a learning disability and both their confidence and knowledge in the area of learning disability and challenging behaviour will also be investigated.

1.12 Hypotheses

1. Participants' knowledge about the defining criteria of learning disability will improve after training.
2. Participants' knowledge about challenging behaviour will improve after training:
 - a. Participants' knowledge about the defining criteria for the term challenging behaviour will improve after training.
 - b. Participants' attributions about the causes of challenging behaviour in children with a learning disability will improve after training. Specifically training will increase the identification of external, uncontrollable, unstable and universal attributions over internal, controllable, stable and personal attributions respectively.
 - c. Participants' knowledge about the management of challenging behaviour will improve after training.

3. Participants' attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream settings will improve after training
4. Participants' self-rated confidence about working with children with a learning disability and challenging behaviour will improve after training.
5. A significant positive correlation is expected between participants' experience of teaching children with a learning disability and their self-rated levels of confidence about working with children with a learning disability and challenging behaviour.
6. A significant positive correlation is expected between participants' experience of teaching children with a learning disability and knowledge about working with children with a learning disability and challenging behaviour.

2.0 METHOD

2.1 Design

A within subjects design was used to investigate the effect of staff training on participants' knowledge about the defining criteria for learning disability and knowledge about challenging behaviour. A similar investigation considered the effect of staff training on participants' attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream classrooms and their self-rated confidence about working with children with a learning disability and challenging behaviour.

Additional within subjects correlations were made to consider the relationship between the amount of experience that participants have of teaching children with a learning disability and their confidence about working with children with a learning disability and challenging behaviour. Similar correlations will also consider the relationship between the amount of experience that participants have of teaching children with a learning disability and their knowledge about the defining criteria for learning disability and managing challenging behaviour.

2.1.1 Power Calculation

There is currently limited research considering teaching staff's knowledge about working with children with a learning disability and managing challenging behaviour (Kiernan & Kiernan, 1994; Morgan & Hastings, 1998), although there has been substantially more research conducted in this area in other settings (e.g. in the health and social care sectors and with the general public) (e.g. McKenzie et al., 1999a; McKenzie et al., 1999b; McKenzie et al., 1999c). There is a similar lack of research considering the effect of staff training on teaching staff's knowledge and attitudes about learning disability and challenging behaviour. There is, however, sufficient evidence from research

in other settings (e.g. McKenzie et al 2000; Berryman et al., 1994; Allen et al., 1997). The utilisation of Cohen's (1992) formula for calculating effect size (for tests of difference) meant that a medium effect size was posited from the aforementioned research articles of a similar nature. Based on estimate of sample size (setting power at 0.8 and alpha at 0.05), a one-tailed within subjects tests of difference would require that $N=26$ (Clark-Carter, 2004). Using the same power and alpha levels, the number required to achieve statistical power for a Pearson's Correlation with a directional hypothesis is between 20 and 25 (Clark-Carter, 2004). It is recommended for non-parametric tests that power is based on their parametric equivalents, however, if parametric assumptions have been violated then additional consideration for power should be applied (Clark-Carter, 2004). The present study had 40 participants, with a minimum of 16 used in the analyses.

2.3 Participants

The experimental group for this study consisted of teachers ($N = 32$) and teaching auxiliaries ($N = 8$).

All participants were working as either a teacher or teaching auxiliary for a primary school in the local area.

2.4 Ethics

2.4.1 Ethical Approval

A letter requesting consent to undertake this study was written to the Head of Schools for the area the study was to be conducted in (Appendix 5) and consequently ethical approval was obtained (see Appendix 6). The author was given consent to approach primary and secondary schools in

the area with a view to recruiting participants. Subsequent consent was given by individual head teachers to approach the teaching staff that worked in the schools they were responsible for.

Consent was also given by the local authority's Educational Psychology Department to undertake the study in the schools that they covered.

2.4.2 Ethical Implications of Carrying Out the Study

This study was conducted within the education sector and while it was not necessary to follow NHS ethical procedures as outlined by the British Psychological Society (BPS) (Cooper et al., 1993), consideration was given to possible ethical issues in regards to this study.

Consent to undertake this study was obtained on four different levels; from educational psychologists, the area's Head of Schools, individual head teachers and individual participants. All parties would be provided with detailed information about the study including the required level of participation (e.g. completing questionnaires at 3 different time points). Contact between interested schools and the researcher would be frequent, providing teaching staff with several opportunities to ask questions about the study. All participants were adults, who were considered able to give informed consent.

The main ethical consideration for conducting this study is in relation to highlighting knowledge that may reflect poor practice. The main aim of the study is to assess teaching staff's knowledge and ascertain the impact of staff training on knowledge and while knowledge isn't always reflective of practice (Hastings & Remington, 1994a) it is necessary to consider the possible implications of

poor knowledge on actual practice. Teaching staff have a duty of care to the children that they work with and the staff that support them and a professional obligation to understand about learning disability (Ward, 1984). Uncovering a poor knowledge about learning disability and challenging behaviour may, therefore, have implications for participants being able to meet their duty of care to the children they support. For example, this study may find that teaching staff are not informed about the needs of children with a learning disability or may be unaware of appropriate management strategies for challenging behaviour, both of which may have a negative effect on their practice. The training employed in this study aims to address the issue of duty of care with a particular emphasis being placed on the necessity that teachers know about the characteristics of children's diagnoses and their subsequent needs, including learning disability. Participants are to be informed about their duty of care in relation to this including the legal and ethical implications of not meeting their duty of care. It was felt that by informing participants of the implications of poor knowledge on their duty of care it would promote communication about ways of rectifying the gaps in knowledge.

One of the variables to be considered in the study is the level of confidence expressed by participants in relation to working both with children with a learning disability and children who display challenging behaviour. It was recognised that while the research suggests that staff training improves knowledge (McKenzie et al., 2000; Berryman et al., 1994; Allen et al., 1997) and confidence (McKenzie et al., 2004), there has been no similar research conducted in the education sector and consideration was made to the fact that an opposite effect may occur. That is, the training may reduce participants' confidence about working with children with a learning disability. Given that the study aimed to assess participants' levels of confidence for working with children

with a learning disability and challenging behaviour, any significant reduction in confidence would be detectable and thus attempts at addressing the implications of under-mining participants' confidence could be made.

The final ethical consideration is the emphasis that the training will place on identifying children with a learning disability in order to ensure their needs are appropriately met by those who support them and to ensure that they have access to the necessary services. It was felt that participants should be provided with the relevant information about how to refer a child in relation to obtaining an assessment of learning disability and they should be informed about the referral route for children into the CAMH service. While it was recognised that potentially there could be an increase in referrals of this nature, it was agreed by the Psychologists in the CAMH service that in the longer term this was a positive move towards ensuring children with a learning disability have their needs met.

2.5 Procedure

2.5.1 Recruitment

Following approval from the Head of Schools, individual letters were written to the head teachers of all primary and secondary schools in the area (see Appendix 7). A total of 76 schools were approached (9 secondary schools and 67 primary schools). The head teachers were given the details of the study and asked that they consider their school for involvement. It was made clear during the recruitment phase that while the training was to be provided for free, teachers would be required to fill out a set of questionnaires at three different time points; prior to the training, immediately after the training and at a follow-up point approximately one month after the training. If

head teachers had no objections to the study, they were asked to outline the details of the study to their staff team in order to ascertain the number of individual teachers interested. Each school was contacted by telephone approximately 3 weeks after the initial letters were sent out to discuss the study and ascertain levels of interest. During this part of the recruitment phase, the author was able to answer any questions that the head teachers had in relation to the study.

All teachers that had expressed an interest in participating were invited to a training event (Appendix 8).

2.5.2 Response Rate

Following the initial recruitment phase, 14 primary schools declared an interest, reflecting a response rate of 21%. None of the 9 secondary schools were recruited. Five schools wrote to the author explaining that they did not feel the study was particularly relevant to their staff teams. Reasons for this were that the study was not felt to be relevant to the staff teams' needs (did not elaborate), the school was already involved in other research, the school had a current commitment to other CPD events or that there were current changes in school structure that meant they were currently unable to commit to any more CPD events. In addition to the above reasons, the low response rate may reflect an underlying confidence in educational staff's knowledge about learning disability and challenging behaviour, therefore not deeming the training worthwhile or appropriate. It may also be that the schools that did not respond felt the training was inappropriate to the population of children at their school (e.g. they did not think they had children with a learning disability or challenging behaviour in their school).

From the 14 schools, a total of 63 teachers were recruited to take part in the study, however, a number of these teachers had to withdraw from the study at different time points for a variety of reasons. One of the schools, which had 15 teachers interested in participating, had to withdraw from the study one week prior to the training due to the arrival of a new head teacher.

Of the 63 teaching staff invited to the training events, a total of 40 teaching staff (32 teachers and 8 teaching auxiliaries) attended the training events (65% of initial recruited sample).

2.5.3 Organisation of Training Events

Following recruitment, training events were organised according to the levels of interest across geographical area. The Head teachers of the schools with the largest number of teaching staff interested were asked to provide training facilities e.g. a room, overhead projector etc. In some cases the training included teachers from a number of schools. Four training dates across four different geographical areas were arranged.

All training events took place in a school environment after the school day, between 3.30pm and 7.30pm (this included time for participants to fill out the study's questionnaires).

2.5.4 The Staff Training

All four training events were run by the researcher and a Clinical Psychologist from the local CAMH Service. The same training package was used for all four training events and was a well established package of training that has been evaluated on social care staff (McKenzie et al., 2000) and health care staff (McKenzie & Paxton, 2002). Given that the training package was originally devised for use with health care workers, adaptations were made to accommodate

educational aspects that paralleled the original training points. For example, the original training package included 'history of learning disability services' and was primarily focused on the development of health services for people with a learning disability. Additional information was provided about the development of educational services for children with a learning disability. Given that the additions to the training paralleled the existing points, the changes were not considered significant but were necessary to put the training in an educational context. The staff training covered the following areas:

- History of Learning Disability services in the context of health and educational sectors
- Implications of the principles of inclusion
- What is a learning disability? Diagnostic criteria
- Components of intelligence and the implications of having a learning disability on these.
- Assessing adaptive functioning
- Duty of care and legal/ethical considerations
- Defining behaviour and challenging behaviour
- Functional analysis
- Principles of reinforcement
- The assault cycle
- Reactive strategies
- Behavioural intervention
- Positive programming
- Punishment and legal/ethical considerations

The training also included a number of interactive activities as recommended by Corrigan & McCracken (1998). All participants engaged well with the activities. The handouts provided for participants after the training are shown in Appendices 9 and 10.

On arrival, participants were asked to provide their name, email address and the school to which they were attached. They were then asked to fill out the questionnaires (Appendices 13 & 14). This took approximately 20 minutes. The questionnaires were collected in by the researcher after this time. The training package about learning disability (Appendix 9) was provided over the first hour and a half, after which participants were given a 20-minute break. The remainder of the training about challenging behaviour (Appendix 10) was completed in the final 2 hours. There was time at the end of the training to ask questions, although a number of comments were made and questions asked throughout the training.

At the end of the training session, participants were asked to complete the same set of questionnaires they had completed prior to training (Appendices 13 & 14). They were also asked to complete an evaluation sheet in relation to their assessment of the training event (Appendix 11).

2.5.5 Follow-up Data Collection

In order to ascertain if gains were maintained after a period of time had elapsed, follow-up questionnaires were sent out to participants approximately 4 weeks after the training had taken place (see Appendices 13 & 14). A stamped addressed envelope was provided to aid response rate. Forty follow-up questionnaire packs were sent out and 19 were returned, giving a 47.5% response rate.

2.6 Description and Application of Measures

Two measures were used in this study to investigate the effect of staff training on the variables outlined in the aims.

2.6.1 Knowledge about the Defining Criteria of Learning Disability and Working with Challenging Behaviour

In relation to teaching staff's knowledge about the defining criteria of learning disability and managing challenging behaviour, the study employed a questionnaire (Appendix 13) adapted from previous research where reliability and validity had been established (McKenzie et al., 2000). This study found that the measures used had significant agreement between raters as shown by inter-rater reliability Kappa values of 0.78 or above ($p < 0.01$). The measures also had discriminative validity i.e. they could discriminate between those who had been trained and those who had not. Minor additions to the questionnaire included items relating to demographic information (e.g. whether the participant was a teacher or auxiliary) and the introduction of a rating scale in relation to participants' confidence about supporting a child with a learning disability and challenging behaviour in their classroom. Due to these minor changes, the questionnaire was piloted with a small group of teachers to establish face validity i.e. did the questionnaire appear to be measuring what it was meant to and social validity i.e. was the content of the questionnaire considered to be relevant to the group with whom it was to be used.

2.6.1.1 Piloting the questionnaire

The questionnaire was piloted with 5 primary school teachers (12.5% of total participant sample) providing them with the opportunity to recommend changes. All questionnaires were completed appropriately and three teachers made comments or suggestions about possible improvements.

One participant noted she was not familiar with the term learning disability, which reinforced the importance of undertaking the training with this population². A second requested that examples be included in the question that asked participants to detail any additional training they had received (question 5.a in Appendix 13). Examples were subsequently included in the final questionnaire. Finally, it was requested that examples be provided with some of the open-ended questions in order to assist the participant in answering them. Given the questionnaire was designed to extract information that represented participant knowledge it was felt that providing examples with the questions might lead the participants to give answers that were unrepresentative of their underlying knowledge and, therefore, make the questionnaire invalid. Consequently, it was felt inappropriate to give examples with the questions. Finally, one teacher questioned how to respond to the likert scale statements (e.g. asking about levels of confidence and preparedness). In response to this comment, instructions were added to the questionnaire requesting that the participant place a cross on the scale according to their feelings about the statement.

The above changes were felt to be minor and the primary aim of the questionnaire, which was about extracting accurate and rich information about participants' knowledge, was not challenged in the pilot study. The pilot study indicated that the adapted questionnaire had face validity and social validity.

² Given that the questionnaires were confidential and anonymous it was not possible to address the gap in knowledge about learning disability highlighted by this particular participant in the pilot study.

2.6.1.2 Scoring the Questionnaire

Questions 1- 6 in section one of the questionnaire aimed to extract information for the purposes of the descriptive results and, therefore, were primarily made up of questions relating to demographic information such as age, years of teaching experience, area of work etc.

Questions that related to this study's main hypotheses about participant knowledge of working with learning disability and challenging behaviour (question 1.a from section 2 and questions 1,2 & 3 from section 3) were scored according to the criteria used in previous research (McKenzie et al., 2000; McKenzie et al., 1999b; McKenzie et al., 1999c). The scoring procedure is outlined below.

2.6.1.2.1 Knowledge of Learning Disability

The question asking participants to write their understanding of the term learning disability was scored according to the three defining criteria for learning disability; impaired intellectual functioning, impaired adaptive functioning and age of onset prior to 18 (BPS, 2000). For each criteria successfully identified in participants definitions a score of 1 was allocated, resulting in a maximum score of three for this question. The defining criteria were adhered to strictly in the scoring of this question (see Table 10). This was due to the overlap between learning disability and other conditions that would be considered under the education term of 'additional needs' (e.g. learning difficulties, autism, dyslexia). It was felt necessary to ensure that participants were referring to learning disability specifically in their answer and not other disorders or difficulties.

2.6.1.2.2 Knowledge of Challenging Behaviour

Knowledge of challenging behaviour was scored according to the criteria used by McKenzie et al. (1999c). The four categories were;

- Topography (e.g. aggression, self-injury or stereotyped behaviour)
- Safety (in relation to a risk of harm to the child or others as a consequence of the behaviour)
- Limited access to services (educational or community services)
- Behaviour, which the teaching staff find difficult to manage.

While these categories support the research about challenging behaviour in educational settings (Kiernan & Kiernan, 1994; BPS, 2004; Male & May, 1997a; Male & May, 1997b; Male, 1996) an additional category was added in response to the number of participants who made reference to the function of challenging behaviour in their definitions. This was not captured by the above categories. These five criteria and sample answers are outlined in Table 4 (Appendix 15). For each category identified by participants a score of 1 was allocated, therefore, the maximum possible score obtainable for this question was five.

2.6.1.2.3 Attributions about the Causes of Challenging Behaviour

Participants' attributions about the causes of challenging behaviour (Section 3, question 2), were scored in two ways:

- According to the attribution themes internal and external, stable and unstable, controllable and uncontrollable and personal and universal. These themes have been used repeatedly in previous research (e.g. Peterson et al., 1982; Stratton et al., 1991; Noone et al., 2006.) Table 3 (Appendix 3) outlines the description and examples of these themes as described by Brewin et al. in 1991. Participants' answers were scored as 'yes' or 'no' depending on whether they made reference

to each of the above attribution themes or not in their answer about why children with a learning disability display challenging behaviour.

- According to the causal models from Hastings' Challenging Behaviour Attribution Scale (CHABA) (Hastings, 1997b). The causal models are outlined in Appendix 4 with examples. Participants' answers were scored as 'yes' or 'no' depending on whether they made reference to each of the causal models or not in their answer about why children with a learning disability display challenging behaviour.

2.6.1.2.4 The Management of Challenging Behaviour

Responses to the question about the management of challenging behaviour were also coded according to the criteria used by McKenzie et al. (2000). The criteria reflects the research into the management of challenging behaviour which has identified four main areas; reactive responses (Hastings & Remington, 1994; Hastings & Remington, 1994b; Bromley & Emerson, 1995), psychological principles (Hastings & Remington, 1994b; Donnellan et al., 1988), positive programming (BPS, 2004, La Vigna et al., 1989) and environmental management strategies (BPS, 2004). Table 5 in Appendix 15 describes each of these themes with examples.

2.6.2 Impact of Inclusion Questionnaire

With regards to assessing teaching staff's attitudes towards inclusion, a newly developed measure of attitudes towards inclusion - 'Impact of Inclusion Questionnaire' (IIQ) (Hastings & Oakford, 2003) was employed (Appendix 14). The IIQ was developed to allow comparisons to be made between different groups of children with special needs. The type of special need being investigated is entered into the relevant spaces in the questionnaire by the researcher prior to use. For the

purpose of this study 'children with a learning disability' was selected as the 'special need' being investigated and, therefore, the term 'learning disability' was entered into the relevant points in the questionnaire.

The IIQ was developed with a total of 24 items. These items correspond to four different domains (6 items per domain) and each domain represents an area where inclusion may have an impact.

The four domains in the IIQ are as follows;

- the impact of inclusion on the target child
- the impact of inclusion on other children in the classroom
- the impact of inclusion on the teacher
- the impact of inclusion on the school or classroom environment.

Hastings & Oakford (2003) devised these four domains from issues raised in previous research regarding attitudes towards inclusion and the areas most affected by these attitudes. They also conducted pilot interviews with teachers, which reinforced the development of the four domains.

Each of the 24 items is a statement about the impact of inclusion of children with learning disability /challenging behaviour in mainstream classrooms and each is rated on a seven point agreement scale ranging from "very strongly disagree" to "very strongly agree" (scored as 1-7).

The four domains outlined above considered the impact that inclusion has on a number of different areas within each domain, which are outlined in Table 6.

The IIQ is scored by generating summed scores for each of the four domains summarised in the table below and also a total attitude score (5 scores in total). Scores on negatively phrased items are reversed so that higher scores reflect more positive attitudes.

Table 6: The Areas of Impact Included Within Each Domain on the Impact of Inclusion Questionnaire (IIQ)	
Domain	Areas Considered
1. Impact of inclusion on the target child with a learning disability/who displays challenging behaviour	Impact on acceptance/ rejection by classmates
	Impact on the child's personal development
	Impact on the child's academic development
2. Impact of inclusion on other children in the classroom	Impact on other children's contact time with teacher
	Impact on children's behaviour problems
	Impact on children's learning opportunities
3. Impact of inclusion on the teacher	Impact on teachers' stress
	Impact on teachers' workload
	Impact on teachers' tiredness
4. Impact of inclusion on the school or classroom environment	Impact on schools' finances
	Impact on classroom routines
	Impact on parent & community perceptions of the school

Scores on the four domains range from 6 to 42 (5–35 for the domain which considers the impact of inclusion on other children in the classroom), and the total IIQ score, which reflects overall attitude towards inclusion, range from 23 to 161. Hastings & Oakford (2003) undertook preliminary psychometrics through estimates of internal consistency of each of the scales using Cronbach's alpha. One item in the 'impact on other children' domain was removed from further analysis and consequently from the final version of the IIQ as it was not found to correlate with the total score on

that domain. This accounts for the lower minimum and maximum score on this domain. Good levels of internal consistency were found for all the domains of the IIQ (target child with special needs, $\alpha = 0.74$; other children, $\alpha = 0.65$; teacher, $\alpha = 0.73$; and school or classroom environment, $\alpha = 0.81$) and the total score ($\alpha = 0.92$).

The IIQ, while a new measure, was considered the most relevant for use within this study. The measure was devised for use within a UK setting, for use within the educational sector, for use with teachers and in relation to children with a learning disability and challenging behaviour.

2.7 Evaluation of the Training

The training was evaluated by asking all participants to complete an evaluation sheet immediately after the training (Appendix 11). The evaluation sheet was filled in anonymously and left in a tray as participants left to ensure anonymity. Thirty-eight (95%) evaluation sheets were received. The results of the evaluation sheet are shown in table 28 in the results section.

2.8 Inter-Rater Reliability

Twelve 'knowledge of learning disability and challenging behaviour' questionnaires (12.4% of the 97 questionnaires returned in total from all three time points) were analysed by two raters to determine inter-rater reliability for the themes used to score the open-ended questions. A Kappa score was obtained for each individual theme and for each of the questions as a whole. The kappa values and corresponding levels of agreement according to Fleiss (1981) for individual themes and whole questions as shown in Table 8 (Appendix 16) and Table 7 in the results section respectively.

3.0 RESULTS

This section will begin by outlining how the data was prepared for analysis, including the levels of agreement for inter-rater reliability, before going on to describe the demographic information about the study's participants with the use of descriptive statistics. The second part of the results section details how each hypothesis was tested using inferential statistics. Additional descriptive information relating to the hypotheses will also be included in the latter section.

3.1 Preparation of the Data for Analysis

The distribution of the variables was investigated by examining the histograms, skewness and kurtosis scores for each variable. All variables used in the analysis were normally distributed.

The data was analysed using both parametric tests and non-parametric tests with SPSS (Statistical Package for the Social Sciences) Version 14. Parametric tests were used to consider differences in mean scores across time, taking account of arguments that that they are more powerful (Dancey & Reidy, 2004) and robust (Clark-Carter, 2004) to violations of their assumptions (Howell, 1997) and, consequently, may be less likely to commit Type II errors (Clark-Carter, 2004). The use of parametric tests is recommended providing the data shows no obvious contraindications, such as outliers, marked skewedness or great disparity of variances (Kinnear & Gray, 2000) and such tests were, therefore, deemed appropriate.

There is no known means for undertaking power analysis for the non-parametric tests used in this study (Cochran's Q) as there is no parametric equivalent on which to base power calculations (Clark-Carter, 2004).

The significance level of test results, unless otherwise stated, was set at $p = 0.05$.

Some of the questions required that participants had an understanding of the term learning disability in order to respond to the question in a valid way (e.g. do you have a child with a learning disability in your class, how many years experience do you have working with children with a learning disability). In the analyses, where this information was required, post-training data was used in order to ensure that participants were informed about the term learning disability.

Some participants did not answer every question in the 'Knowledge of Learning Disability and Challenging Behaviour' questionnaire (Appendix 13) and left questions blank. This affected the numbers used in the final analysis of individual questions from the questionnaire. Consequently, in the following results section numbers will vary according to number of participants who provided an answer for each question.

3.2 Results of Inter-Rater Reliability

A Kappa score was obtained for each individual theme and an overall Kappa score was obtained for each of the questions as a whole in order to ascertain levels of inter-rater reliability. The levels of agreement for each question assessed for inter-rater reliability are shown in the table below. (See Appendix 16 for the levels of agreement for each individual theme within each question).

Table 7: Inter-Rater Reliability for Complete Questions and the Corresponding Themes Used in the Analysis of Participants' Answers			
Question Number	Question	Significance of Kappa (Kappa value and p value)	Levels of Agreement According to Fleiss (1981)
Section 2, 1.a	Please provide a brief description of your understanding of the term 'learning disability'.	K = 0.90 p < 0.001	Excellent
Section 3, 1	What do you think the term 'challenging behaviour' means in relation to children with a learning disability?	K = 0.95 p < 0.001	Excellent
Section 3, 2	What do you think some of the main reasons are for a child with a learning disability displaying challenging behaviour?	Attribution Themes K = 1.00 p < 0.001	Excellent
		Causal Models (CHABA) K = 0.90 p < 0.001	Excellent
Section 3, 3	What are some of the ways of managing challenging behaviour displayed by a child with a learning disability?	K = 0.87 p < 0.001	Excellent

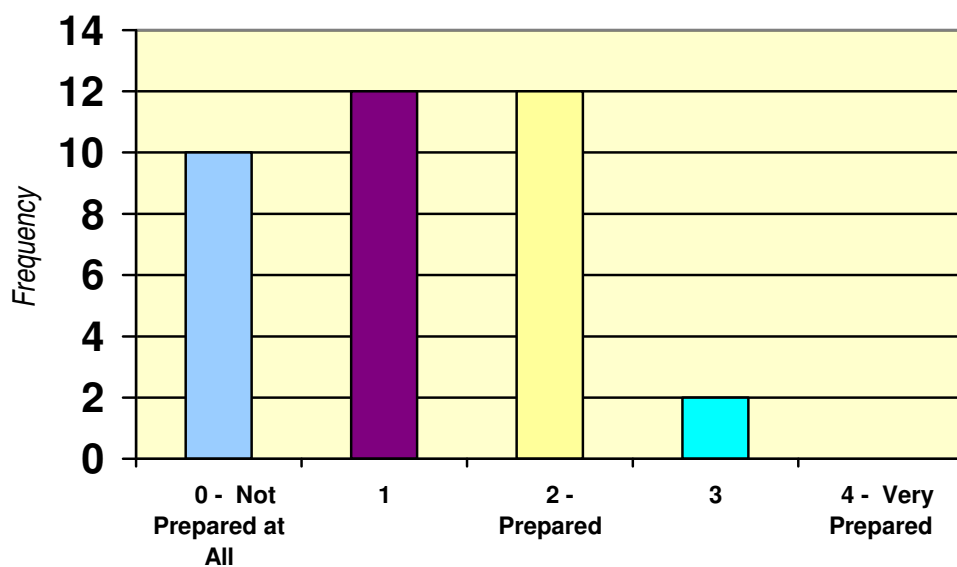
3.3 Descriptive Statistics

3.3.1 Participant Demographics

The age of participants ranged from 23-60 (mean = 43.98, S.D = 8.36). A total of 39 females and 1 male participated. Of the 40 participants, 32 (80%) were qualified teachers and 8 (20%) were teaching auxiliaries. The number of years working as a teacher or auxiliary ranged from 1-38 (Mean = 15.38, S.D = 10.60) and all participants were working in a primary school setting at the time of the study. Thirty-nine (97.5.%) participants were working in a mainstream classroom at the

time of the study and one was working in a Learning Support Unit. Ten of the participants (25%) had received additional training that was relevant to working with children with a learning disability or children who display challenging behaviour (e.g. assertive discipline training, training about working with children with ASD). The remainder (75%) had received no additional training to supplement their basic teacher training in relation to working with children with a learning disability.

The extent to which the teachers involved in the study (N=32) felt their basic teacher training had prepared them for working with children with a learning disability (0 = not all prepared, 4 = very prepared) is outlined in Figure 1 (mean = 1.17 S.D = 0.91).



Participants Feelings of Preparedness to Teach Children with a Learning Disability after Basic Teacher Training

Figure 1: Preparedness of Participants to Teach Children with a Learning Disability after Basic Teacher Training

Twenty-seven (67.5%) participants reported that they currently had a child with a learning disability in their class. The number of years experience that participants had of working with children with a learning disability ranged from 0-31 (Mean = 9.03, S.D = 7.72).

3.4 Hypothesis Testing

Each hypothesis was tested using inferential statistics. Paired Samples t-tests, Cochran's Q and McNemar tests were used to investigate hypotheses 1-4. Pearson's correlations were used to investigate hypotheses 5-6. The significant results for each hypothesis are reported below and where applicable the non-significant results are shown in Appendix 17.

3.4.1 Hypothesis 1

Participants' knowledge about the defining criteria of learning disability will improve after training.

Hypothesis one was investigated on four levels;

- a. Whether participants' mean scores for identifying the defining criteria for learning disability improved after training.
- b. Whether the number of participants correctly identifying each of the three criteria for learning disability improved significantly after training.
- c. Whether any significant differences exist between the likelihood of participants identifying each of the three criteria at each time point.
- d. Whether participants are less likely to use incorrect terms as alternatives for learning disability after training.

Hypothesis 1; Part a

One-tailed Paired Samples t-tests were conducted in order to compare participants' knowledge about the defining criteria for learning disability pre-training and post training, pre-training and at follow-up and post-training and at follow-up. The variable representing the total number of defining criteria for learning disability that participants' correctly identified was used in this analysis. The three criteria were impaired intelligence (IQ), impaired adaptive skills and age of onset, therefore, participants scores ranged from 0-3.

Results showed significant differences between participants' knowledge about the defining criteria for learning disability prior to training and immediately after training ($t = 13.1$, $p < 0.001$, $df = 34$), prior to training and at follow-up ($t = 3.557$, $p = 0.001$, $df = 17$) and post training and at follow-up ($t = 3.951$, $p < 0.001$, $df = 16$). The means and standard deviations for each of these pairings are shown in Table 9.

Table 9: Means and Standard Deviations for Total Defining Criteria for Learning Disability Correctly Identified According to Time Pairings			
Time Points	Number	Mean	Standard Deviation
Pre-training	35	0.3	0.17
Post-training	35	2.37	1.0
Pre-training	18	0.0	0.0
Follow-up	18	1.06	1.259
Post-training	17	2.24	1.091
Follow-up	17	1.12	1.269

Participants' knowledge about the defining criteria for learning disability improved significantly after training and this difference remained significant at follow-up.

Hypothesis 1; part b

In order to provide more comprehensive information about participants' knowledge of learning disability, Table 10 shows the percentage of participants that correctly identified each of the three criteria at the three different time points, with examples.

Table 10: Examples of Correctly Defined Criteria for Learning Disability with the Number and Percentages Identified at Each Time Point				
Defining Criteria	Examples Given	Percentage (and Number) Correctly Identified at Each Time Point		
		Pre (N=37)	Post (N=38)	F.U (N=19)
I.Q	'Measured low level of IQ' 'IQ less than 70' 'Significantly impaired IQ'	3% (N=1)	89.5% (N=34)	47% (N=9)
Adaptive Skills	'Impaired adaptive skills' 'Deficiency of skills in daily living'	0% (N=0)	71% (N=27)	26% (N=5)
Age of Onset	'Onset prior to 18' 'Happens before brain is fully developed'	0% (N=0)	68% (N=26)	32% (N=6)

Cochran's Q tests were conducted on the IQ, adaptive skills and age of onset criteria at the three different time points to ascertain if training significantly improved participants' ability to identify each of the three criteria. A significant difference was found across time for the IQ criterion (N = 16) (Cochran's Q = 21.14, df = 2, $p < 0.001$), the adaptive skills criterion (N = 16) (Cochran's Q = 18.17, df = 2, $p < 0.001$) and the age of onset criterion (N = 16) (Cochran's Q = 15.00, $p = 0.001$). McNemar tests were subsequently conducted to establish between which time points the above significant differences occurred. A bonferroni adjustment was applied to allow for multiple comparisons (3) and the p value was, therefore, set at 0.017. The findings are shown in Table 11 and the non-significant result in Appendix 17.

Table 11: Significant Differences between Time Points for Each Defining Criterion for Learning Disability			
Criteria	Time Pairings	Total Number	P value (=0.017)
IQ	Pre - Post	35	< 0.001
	Pre -Follow-up	17	0.016
	Post - Follow-up	18	0.004
ADAPTIVE SKILLS	Pre - Post	35	< 0.001
	Post - Follow-up	17	0.016
AGE OF ONSET	Pre - Post	35	< 0.001

The information in Tables 10 and 11 show that participants' ability to identify all three defining criteria for learning disability improved significantly after training. Participants' ability to identify the IQ criterion remained significantly better at follow-up than at pre-training, however, this difference was not maintained for the other two criteria. There was a significant decrease in participants' ability to identify all three criteria at follow-up in comparison to immediately after training.

Hypothesis 1; part c

Further analyses were conducted, using Cochran's Q tests, to investigate if there were any significant differences between how frequently each criterion was identified at each of the three different time points.

No significant results were found for differences between criteria identified prior to training (N = 37) (Cochran's Q = 2.00, df = 2, p = 0.368) or at follow-up (N = 19) (Cochran's Q = 4.333, df = 2, p =

0.115). A significant result was found between criteria immediately after training (N = 38) (Cochran's Q = 10.364, df = 2, p = 0.006). In order to establish between which criteria this difference occurred McNemar tests were conducted. A bonferroni adjustment was applied to allow for multiple comparisons (3) and p value was subsequently set at 0.017. The significant results of the McNemar tests are shown in table 12 (the non significant result is shown in Appendix 17).

Table 12: Significant Differences between Criteria for Learning Disability Identified at the Post Training Time Point					
Time Point	Criteria Pairings	Total Number	Percentage and Number for Each Variable		P value (=0.017)
POST TRAINING	IQ- Adaptive Skills	38	IQ=89.5% (N=34)	Ad= 71.1% (N=27)	0.016
	IQ- Age of Onset	38	IQ=89.5% (N=34)	Onset= 68.4% (N=26)	0.008

Participants were significantly more likely to identify the 'IQ' criterion in the definition of learning disability in comparison to both the adaptive skills and the age of onset criteria immediately after training.

Hypothesis 1; part d

As shown from the results in part a, none of the participants were able to correctly identify all three defining criteria for learning disability prior to training. Thirty-seven participants (93%), however, provided an answer on the pre-training questionnaires that reflected their understanding of the term learning disability. The information provided was organised into themes (table 13). Inter-rater reliability for this question was conducted and was found to be excellent at kappa = 0.90 (Fleiss,

1981). For purposes of comparison, the percentage of participants defining learning disability under these themes post-training and at follow-up is also shown in table 13.

This table shows that after training no participants used these inaccurate themes to describe learning disability, however, there was an increase at follow-up in the use of the themes.

Participants were also asked if they understood any other term to mean the same as learning disability. Information gathered in relation to this question is presented in table 14, which illustrates the percentage of participants who provided an alternative term for learning disability and the percentage that were correct and incorrect. Examples of both correct and incorrect alternative terms for learning disability provided by participants prior to training are also shown in table 14.

Table 13: Examples of the Themes Reflecting Participants' Understanding of the Term Learning Disability with the Number and Percentages of Participants Referring to Each Theme					
Theme	Theme Title	Examples	Percentage of Participants' Including Each Theme in their Definition of Learning Disability		
			Pre Training (N=37)	Post Training (N=36)	Follow-up (N=19)
1	Reference to difficulty with specific aspect of cognitive functioning	'difficulty following classroom instructions', 'not able to understand instructions', 'difficulty reading text or numbers'	24% (N=9)	3% (N=1)	16% (N=3)
2	Difficulty learning or accessing mainstream curriculum	'children who have a barrier to their learning', 'children who have difficulty accessing part of the general curriculum'	41% (N=15)	3% (N=1)	37% (N=7)
3	Needs additional support in class	'require extra or additional help because of recognised needs or problems'	49% (N=18)	0% (N=0)	10.5% (N=2)
4	Emotional or behavioural problems	'...due to emotional difficulties or problems.'	16% (N=6)	3% (N=1)	0% (N=0)
5	Physical difficulty/disability	'physical problems'	16% (N=6)	0% (N=0)	5% (N=1)
6	Use of an alternative label	Autism, Aspergers, SEN, additional needs, dyslexia	11% (N=4)	0% (N=0)	10.5% (N=2)

Table 14: Percentage of Participants Providing Alternative Terms for Learning Disability, Percentage that are Correct & Incorrect and Examples of Terms Provided.					
Time Point	% of Participants Providing Alternative Term	% of Participants Identifying Correct Alternative	Examples of Correct Alternatives	% of Participants Identifying Incorrect Alternative	Examples of Incorrect Alternatives
Pre (N=36)	64% (N=23)	0% (N=0)	Mental retardation, significant/severe impairment, mentally deficient.	100% (N=36)	Complex needs, learning difficulties, additional needs, SEN, autism, Aspergers.
Post (N=40)	37.5 (N=15)	60% (N=9)		40% (N=6)	
Follow-up (N=19)	42% (N=9)	12.5% (N=1)		87.5% (N=7)	

The information in table 14 shows that participants identify more correct and less incorrect alternative terms for learning disability immediately after training than prior to training.

Summary of Hypothesis one

The findings of Hypothesis One show that participants' knowledge about the defining criteria for learning disability improved significantly after training. This is shown by:

1. The significant increase in participants' mean scores for identifying the defining criteria for learning disability pre and post training. This increase in knowledge remained significant at one-month follow up.
2. The significant increase in the number of participants identifying each of the criterion pre and post training.
3. There was a decrease in participants' use of other, incorrect terms for learning disability and an increase in correct alternative terms after training.

On the basis of the above findings hypothesis one was accepted.

3.4.2 Hypothesis 2

Participants' knowledge about challenging behaviour will improve significantly after training.

This hypothesis was investigated on 3 levels;

- a. Whether participants' understanding of the term challenging behaviour improved after training.
- b. Whether participants' attributions about the causes of challenging behaviour in children with a learning disability changed after training.
- c. Whether participants' knowledge about the management of challenging behaviour improved after training.

Hypothesis 2: Part a

Participants' Understanding of the Term Challenging Behaviour will Improve After Training

One-tailed Paired Samples t-tests were conducted in order to compare participants' understanding of the term challenging behaviour in relation to children with a learning disability pre-training and post training, pre-training and at follow-up and post-training and at follow-up. The variable, which represented the total number of defining criteria for challenging behaviour that participants correctly identified, was used in this analysis. There were 5 defining criteria used for the definition of challenging behaviour, therefore, participants' score for this question ranged from 0-5. The defining criteria were; function, topography, safety, limited access to service and behaviour that is difficult for service to cope with.

Results showed no significant difference between participants' knowledge prior to training and immediately after training ($t = 0.183$, $df = 34$, $p = 0.43$), however, a significant difference was found between participants' knowledge prior to training and at follow-up ($t = 1.8$, $df = 17$, $p = 0.045$) and post training and at follow-up ($t = 2.65$, $df = 17$, $p = 0.009$). The means and standard deviations for each of these pairings are shown in table 15.

Table 15: Means and Standard Deviations of Total Defining Criteria for Challenging Behaviour Correctly Identified According to Time Pairings			
Time Points	Number	Mean	Standard Deviation
Pre-training	35	1.2	0.584
Post-training	35	1.17	0.891
Pre-training	18	1.28	0.575
Follow-up	18	1.67	0.840
Post-training	18	1.17	0.707
Follow-up	18	1.78	0.732

Table 16 shows the number and percentage of participants identifying each of the defining criteria for challenging behaviour across each time point.

Table 16: Number and Percentage of Participants Identifying Each Criteria for Definition of Challenging Behaviour at Each Time Point						
Criteria for Challenging Behaviour Definition	PRE (N = 37)		POST (N = 37)		FOLLOW-UP (N = 19)	
	Number	Percentage %	Number	Percentage %	Number	Percentage %
Function	21	56.8	6	16.2	6	31.6
Topography	11	29.7	10	27	10	52.6
Safety	4	10.8	11	29.7	12	63.2
Access to Services	4	10.8	8	21.6	2	10.5
Difficult to Cope With	3	8.1	8	21.6	2	10.5

Cochran's Q tests were conducted to examine if participants were significantly more likely to identify any of the criteria for challenging behaviour in comparison to the others at each of the time points. A significant result was found prior to training (N = 37) (Cochran's Q = 30.68, df = 4, $p < 0.001$) and also at follow up (N = 19) (Cochran's Q = 17.70, df = 4, $p = 0.001$). No significant differences were found between criteria immediately after training (N = 37) (Cochran's Q = 2.203, df = 4, $p = 0.698$). In order to establish between which criteria the significant differences existed McNemar tests were conducted between all 5 defining criteria at the pre-training time point and at the follow-up time point. A bonferroni adjustment was applied to allow for multiple comparisons (10) and the p value was subsequently set at 0.005 for both McNemar tests. Following the bonferroni adjustment no significant differences were found between criteria at follow-up. The

significant results for pre training criteria are shown in table 17. The non-significant results are shown in Appendix 17.

<i>Table 17: Results Showing Significant Differences Between Criteria for the Term Challenging Behaviour Identified at the Pre Training Time Point</i>			
Time Point	Criteria Comparisons	Total Number	P value (=0.005)
PRE TRAINING	Function-Safety	37	<0.001
	Function-Limited Access	37	<0.001
	Function- Service Can't Cope	37	<0.001

The above results show that participants were significantly more likely to describe the function of challenging behaviour in their definition than 'safety issues', 'limited access to services' and 'a challenge for services to cope' with prior to training.

Additional Cochran's Q tests were conducted in order to establish if training significantly changed the types of defining criteria for challenging behaviour identified by participants. A significant difference was found for the defining criterion of 'safety' across the three time points (N = 16) (Cochran's Q = 9.56, df = 2, p = 0.008) but not for any of the other defining criteria; Function (N = 16) (Cochran's Q = 5.60, df = 2, p = 0.061), Topography (N = 16) (Cochran's Q = 2.167, df = 2, p = 0.338), Limited Access to Services (N = 16) (Cochran's Q = 2.00, df = 2, p = 0.368) and Service Can't Cope (N = 16) (Cochran's Q = 0.400, df = 2, p = 0.819). McNemar tests were conducted to establish between which time points the significant difference in the safety variable existed. A bonferroni adjustment was applied to allow for multiple comparisons (3) and p value was subsequently set at 0.017. The results of the McNemar tests showed that participants were

significantly more likely to identify the 'safety' criterion at follow-up than they were prior to training as shown in table 18.

Table 18: Results Showing Significant Difference Between Time Points for 'Safety' Criterion.					
Criterion	Time Pairings	Total Number	Percentage and Number for Each Variable		P value (=0.017)
SAFETY CRITERION	PRE TRAINING-FOLLOW-UP	16	Pre training= 18.8% (N=3)	Follow-up= 62.5% (N=10)	0.008

Summary of Hypothesis Two; part a

Findings from the first part of Hypothesis two show that participants' knowledge about the defining criteria for challenging behaviour was significantly better at follow-up than prior to training and immediately after training. The results also show that prior to training participants were significantly more likely to identify the function of challenging behaviour in their definition than safety issues, limited access to service or difficult for service to cope with. There were no significant differences between the criteria identified immediately after training or at follow-up.

In relation to changes across time, the above results show that participants were significantly more likely to identify 'safety issues' as a defining criterion for challenging behaviour at follow-up than they were prior to training. No other significant differences were found between criteria across time. Knowledge generally about the definition of challenging behaviour improved at follow-up but not immediately after training and apart from the criteria of safety, training did not significantly change the type of criteria identified for the definition of challenging behaviour.

This part of the hypothesis could not, therefore be accepted.

Hypothesis 2: Part b

Participants' Attributions About the Causes of Challenging Behaviour in Children with a Learning Disability will improve after Training

This part of the hypothesis will examine the types of attributions made by the participants at each of the three time points, then it will examine whether there are any significant differences between the types of attributions made at each of the three time points. Finally it will analyse whether there are any significant differences in the frequency of attributions identified across the three time points.

The following analyses will consider the attribution themes in one section and the causal models from Hastings' CHABA (1997b) in another.

Attribution Themes

The 8 attribution themes (4 contrasting pairs) considered were internal and external, stable and unstable, personal and universal and controllable and uncontrollable.

The following table summarises the types of causal attributions made by participants in relation to challenging behaviour in children with a learning disability at each of the three time points.

Table 19: Percentage and Number of Participants Identifying Attribution Themes in Their Answers About the Causes of Challenging Behaviour			
Attribution Types (paired)	PRE (N=40)	POST (N=40)	FOLLOW-UP (N=19)
Internal	87.5% (35)	85% (34)	100% (19)
External	22.5% (9)	32.5% (13)	21% (4)
Personal	50% (20)	35% (14)	37% (7)
Universal	5% (2)	2.5% (1)	0% (0)
Stable	20% (8)	12.5% (5)	21% (4)
Unstable	77.5% (31)	72.5% (29)	89.5% (17)
Controllable	22.5% (9/40)	30% (12)	32% (6)
Uncontrollable	17.5 (7/40)	15% (6)	10.5% (2)

McNemar tests were conducted to examine if there were significant differences within the pairs of attributions (e.g. between internal and external, stable and unstable, personal and universal and controllable and uncontrollable) at each of the three time points. The significant results of the McNemar tests for pre training, post training and follow-up attribution pairings are shown in Table 20. The non-significant results are shown in Appendix 17.

The results show that participants were significantly more likely to attribute internal causes for challenging behaviour over external, unstable causes over stable and personal causes over universal causes at all three time points. No significant differences were found between the controllable and uncontrollable attributions at any of the three time points.

Table 20: Significant Differences between Attribution Themes for Causes of Challenging Behaviour Identified at the Three Time Points				
Time Points	Attribution Pairings	Total Number	Chi-Square X2 (where applicable)	P value (=0.05)
PRE TRAINING	Internal-External	37	20.83	< 0.001
	Stable-Unstable	37	17.93	< 0.001
	Personal-Universal	37	n/a	< 0.001
POST TRAINING	Internal -External	39	12.90	< 0.001
	Stable-Unstable	39	18.89	< 0.001
	Personal-Universal	39	n/a	< 0.001
FOLLOW-UP	Internal-External	19	n/a	< 0.001
	Stable-Unstable	19	n/a	< 0.001
	Personal-Universal	19	n/a	p = 0.016

Further analyses were conducted in order to establish if training had a significant effect on how frequently each attribution was made. Cochran's Q tests were conducted to examine changes in the frequency of attribution across time. There were no significant differences in the frequency that participants identified each of the attribution types across the time points; for internal (N = 17) (Cochran Q = 3.50, df = 2, p = 0.17), external (N = 17) (Cochran Q = 1.75, df = 2, p = 0.42), stable (N = 17) (Cochran Q = 0.286, df = 2, p = 0.87), unstable (N = 17) (Cochran Q = 0.286, df = 2, p = 0.87), personal (N = 17) (Cochran Q = 0.62, df = 2, p = 0.74), universal (N = 17) (Cochran Q = 4.00, df = 2, p = 0.14), controllable (N = 17) (Cochran Q = 1.27, df = 2, p = 0.53), uncontrollable (N = 17) (Cochran Q = 0.33, df = 2, p = 0.85),

The results suggest that training does not affect the type of attributions made about challenging behaviour.

Causal Models

Analyses were conducted on the 5 causal models identified in Challenging Behaviour Attribution Scale (CHABA) (Hastings 1997b) to ascertain if training affected the types of casual models applied to challenging behaviour. The five causal models from CHABA were used in the following analyses: learned behaviour, biomedical, emotional, physical environment and stimulation.

The following table summarises the types of causal models applied to challenging behaviour in children with a learning disability by participants at each of the three time points.

<i>Table 21: Percentage and Number of Participants Identifying each Causal Model in Their Answers About the Causes of Challenging Behaviour</i>			
Causal Model	PRE (N=40)	POST (N=40)	FOLLOW-UP (N=19)
Learned Behaviour	27.5% (11)	57.5% (23)	37% (7)
Biomedical	32.5% (13)	20% (8)	53% (10)
Emotional	80% (32)	65% (26)	74% (14)
Physical Environment	30% (12)	17.5% (7)	21% (4)
Stimulation	10% (4)	7.5% (3)	5% (1)

Cochran's Q tests were conducted in order to establish if training significantly changed the type of casual model identified across the three time points. One significant difference was found between participants' identification of the 'emotional' causal model across the three time points (N = 18) (Cochran Q = 7.40, df = 2, p = 0.025). There were no other significant differences found across time for the other causal models; Learned Behaviour (N = 18) (Cochran Q = 4.909, df = 2, p = 0.086). Biomedical (N = 18) (Cochran Q = 4.50, df = 2, p = 0.105), Physical Environment (N = 18)

(Cochran Q = 2.00, df = 2, p = 0.368) and Stimulation (N = 18) (Cochran Q = 0.000, df = 2, p = 1.00). McNemar tests were conducted to establish between which time points the significant difference for the Emotional causal model existed. A Bonferroni adjustment was applied to allow for multiple comparisons (3) and p value was subsequently set at 0.017. The significant finding identified by the Cochran's Q was no longer significant after the Bonferroni adjustment was applied. As was found with the attribution types, the type of causal models applied to challenging behaviour did not change significantly after training.

Summary

Participants were significantly more likely to identify internal, unstable and personal causal models than external, stable and universal casual models respectively to challenging behaviour prior to and immediately after training. Training had no significant effect on the type of attribution made or causal model applied to challenging behaviour.

This part of hypothesis two could not be accepted.

Hypothesis 2: Part c

Participants' Knowledge about the Management of Challenging Behaviour will improve after Training

One-tailed Paired Samples t-tests were conducted in order to compare participants' knowledge of the types of strategies used in the management of challenging behaviour in children with a learning disability pre-training and post training, pre-training and at follow-up and post-training and at follow-up. The variable, which represented the total types of management strategy that participants'

correctly identified, was used in this analysis. The types of management strategy identified by participants were coded as: environmental, reactive, psychological principle and positive programming, therefore, participants' scores ranged from 0-4.

Results showed no significant difference between participants' scores prior to training and immediately after training ($t = 0.403$, $p = 0.345$, $df = 35$) or prior to training and at follow-up ($t = 0.677$, $p = 0.25$, $df = 16$) or post training and at follow-up ($t = 0.368$, $p = 0.36$, $df = 16$). The means and standard deviations for each of these time pairings are shown in table 22.

Table 22: Means and Standard Deviations for the Types of Management Strategy Correctly Identified by Participants			
Time Points	Number	Mean	Standard Deviation
Pre-training	36	1.67	0.756
Post- training	36	1.72	0.849
Pre- training	17	1.71	0.588
Follow-up	17	1.53	1.13
Post- training	17	1.71	0.92
Follow-up	17	1.59	1.12

Table 23 shows the number and percentage of participants who identified each of the four types of management strategy at each time point.

Table 23: Number and Percentage of Participants Identifying Each Type of Strategy for the Management of Challenging Behaviour at Each Time Point						
Type of Management Strategy	PRE (N = 36)		POST (N = 38)		FOLLOW-UP (N = 18)	
	Number	Percentage %	Number	Percentage %	Number	Percentage %
Environmental	25	69.4	13	34.2	6	33.3
Reactive	21	58.3	19	50.0	13	72.2
Psychological Principle	16	44.4	27	71.1	7	38.9
Positive Programming	0	0	6	15.8	2	11.1

In order to examine if significant differences existed between the types of management strategy identified at each of the three time points Cochran's Q tests were applied. Significant differences were found at pre-training (N = 36) (Cochran's Q = 34.94, df = 3, p = <0.001), post-training (N = 38) (Cochran's Q = 23.68, df = 3, p < 0.001) and at follow-up (N = 18) (Cochran's Q = 15.50, df = 3, p = 0.001). McNemar tests were conducted to ascertain between which types of management strategy these differences existed at each time point. A Bonferroni adjustment was applied to allow for multiple comparisons (6) and p value was subsequently set at p = 0.008. The significant results are shown in table 24.

Table 24: Significant Differences between Types of Management Strategy Identified for Challenging Behaviour at the Three Time Points			
Time Point	Pairings of Strategy Type	Total Number	P value (=0.008)
PRE TRAINING	Environmental- Positive Prog.	36	< 0.001
	Reactive- Positive Prog.	36	< 0.001
	Psych. Principle- Positive Prog.	36	< 0.001
POST TRAINING	Reactive- Positive Prog.	38	0.007
	Psych. Principle-Positive Prog.	38	< 0.001
FOLLOW-UP	Reactive - Positive Prog.	18	0.003

The results in Table 24 show that participants were significantly more likely to describe environmental, reactive and psychological principles in the management of challenging behaviour than positive programming strategies prior to training. The significant difference between environmental strategies and positive programming no longer existed immediately after training, however, participants were still significantly more likely to describe reactive strategies and psychological principles than positive programming after training. At follow-up only one significant difference was found; participants were more likely to describe reactive strategies over positive programming strategies.

Finally, Cochran's Q tests were conducted to establish if training had a significant impact on the types of management strategies describe by participants. There were no significant differences found between the frequency of each type of management strategy identified across time; Environmental (N = 15) (Cochran's Q = 4.667, df = 2, p = 0.097), Reactive (N = 15) (Cochran's Q =

0.800, $df = 2$, $p = 0.670$), Psychological Principles ($N = 15$) (Cochran's $Q = 4.545$, $df = 2$, $p = 0.103$), Positive Programming ($N = 15$) (Cochran's $Q = 2.00$, $df = 2$, $p = 0.368$).

Conclusion of Hypothesis 2

Analyses of Hypothesis two aimed to establish if participants' knowledge about challenging behaviour improved significantly after training. There was limited support for this hypothesis, therefore, Hypothesis 2 could not be accepted.

3.4.3 Hypothesis 3

Participants' attitudes towards inclusion will improve after training

This hypothesis was tested by examining whether there was a significant difference in participants' scores on the IIQ between pre training and post training, pre-training and at follow-up and post training and at follow-up.

One-tailed Paired Samples T-tests were conducted in order to investigate if participants' mean scores on the IIQ increased after training. Results suggested no significant differences existed between participants' IIQ scores prior to and immediately after training ($t = 0.843$, $p = 0.203$, $df = 34$), prior to training and at follow-up ($t = 1.396$, $p = 0.09$, $df = 16$) or immediately after training and at follow-up ($t = 1.073$, $p = 0.15$, $df = 16$). The mean attitude scores and the corresponding standard deviations for the three different time pairings are also shown in table 25.

Table 25: Means and Standard Deviations of Participants' Scores on the IIQ According to Time Comparisons			
Time Points	Number	Mean	Standard Deviation
Pre-training	35	95.11	19.59
Post-training	35	96.66	17.07
Pre-training	17	96.35	20.11
Follow-up	17	91.06	20.02
Post-training	17	95.53	17.31
Follow-up	17	91.35	20.24

Figure 2 illustrates participants' scores for each of the four domains within the IIQ (impact of inclusion on the teacher, the environment, other children and the child). The mean IIQ score for each of these domains is shown in figure 2.

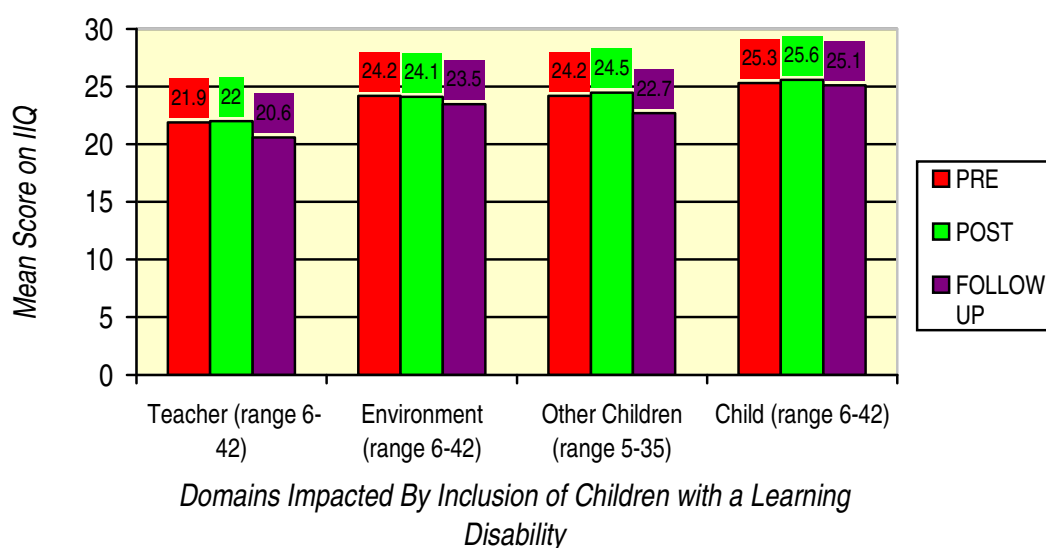


Figure 2: Participants' Mean Scores for Each Domain within the Impact of Inclusion Questionnaire (IIQ)

Participants' attitudes towards the inclusion of children with a learning disability in mainstream classrooms did not significantly improve after training.

Hypothesis 3 could not be accepted.

3.4.4 Hypothesis 4

Participants' self-rated confidence about working with children with a learning disability and challenging behaviour will improve after training.

This hypothesis was considered in two parts;

- a. whether confidence about working with children with a learning disability improved after training.
- b. whether confidence about working with children with a learning disability who also display challenging behaviour improved after training.

Hypothesis 4: Part a

One-tailed Paired Samples T-tests were conducted in order to investigate if participants' confidence about working with children with a learning disability improved after training. Results suggested no significant differences existed prior to and immediately after training ($t = 1.15$, $p = 0.13$, $df = 34$), no significant differences existed prior to training and at follow-up ($t = 0.766$, $p = 0.23$, $df = 17$) and no significant differences existed immediately after training and at follow-up ($t = 1.376$, $p = 0.09$, $df = 16$). The mean levels of self-rated confidence and corresponding standard

deviations about working with children with a learning disability for the three time pairings are shown in Table 26.

Table 26: Means and Standard Deviations of Participants' Self Rated Confidence for Working with Children with a Learning Disability According to Time Points			
Time Points	Number	Mean	Standard Deviation
Pre-training	35	2.17	0.95
Post-training	35	2.31	0.80
Pre-training	17	2.17	0.79
Follow-up	17	2.33	0.84
Post-training	16	2.41	0.71
Follow-up	16	2.24	0.83

These findings do not lend any support to hypothesis 4.

Hypothesis 4: Part b

One-tailed Paired Samples T-tests were conducted in order to investigate if participants' confidence about working with children with a learning disability who display challenging behaviour improved after training. Results suggested no significant differences existed prior to and immediately after training ($t = 0.099$, $p = 0.46$, $df = 35$), prior to training and at follow-up ($t = 1.000$, $p = 0.17$, $df = 17$) or immediately after training and at follow-up ($t = .524$, $p = 0.30$, $df = 17$). The mean levels of self-rated confidence about working with children with a learning disability who also display challenging behaviour and the corresponding standard deviations for the three different time points are shown in Table 27.

Table 27: Means and Standard Deviations of Participants' Self Rated Confidence for Working with Children with a Learning Disability who Display Challenging Behaviour According to Time Points			
Time Points	Number	Mean	Standard Deviation
Pre-training	36	2.14	1.05
Post-training	36	2.11	0.85
Pre-training	18	2.17	0.92
Follow-up	18	1.83	0.79
Post-training	18	1.94	0.87
Follow-up	18	1.83	0.79

Given the above non-significant results, hypothesis 4 could not be accepted.

3.4.5 Hypothesis 5

A significant positive correlation is expected between participants' experience of teaching children with a learning disability and their self-rated levels of confidence about working with children with a learning disability and challenging behaviour.

This hypothesis was considered in two parts;

- a. whether the number of years that participants had been teaching children with a learning disability was significantly positively correlated with confidence about working with children with a learning disability.
- b. whether the number of years that participants had teaching children with a learning disability was significantly positively correlated with confidence about working with children with a learning disability who also display challenging behaviour.

Hypothesis 5; Part a

A Pearson's correlation detected no significant relationship between the number of years experience teaching children with a learning disability and self-rated levels of confidence of working with children with a learning disability ($r = 0.146$, $p = 0.209$, $N = 33$)

Hypothesis 5; Part b

A Pearson's correlation detected no significant relationship between the number of years experience teaching children with a learning disability and self rated levels of confidence of working with children with a learning disability who also display challenging behaviour ($r = 0.008$, $p = 0.483$, $N = 33$).

The above non-significant results mean that hypothesis 5 could not be accepted.

3.4.6 Hypothesis 6

A significant positive correlation is expected between participants' experience of teaching children with a learning disability and knowledge about working with children with a learning disability and challenging behaviour.

This hypothesis is considered in two parts;

- a. Whether the number of years that participants had been teaching children with a learning disability was significantly positively correlated with knowledge about the defining criteria for learning disability.

- b. Whether the number of years that participants had been teaching children with a learning disability was significantly positively correlated with knowledge about management strategies for challenging behaviour.

Hypothesis 6; Part a

The variable, which represented the total number of defining criteria for learning disability correctly identified by each participant prior to training, was used to represent knowledge of the term learning disability.

A Pearson's correlation detected no significant relationship between the number of years experience of teaching children with a learning disability and knowledge about the defining criteria for learning disability ($r = -0.023$, $p = 0.449$, $N = 33$)

Hypothesis 6; Part b

The variable, which represented the total number of management strategy types identified by each participant prior to training, was used to represent knowledge about managing challenging behaviour.

A Pearson's correlation detected no significant relationship between the number of years experience of teaching children with a learning disability and knowledge about management strategies for challenging behaviour, as measured by the total number of strategy types identified ($r = -0.09$, $p = 0.293$, $N = 33$).

Hypothesis 6 could not be accepted.

3.5 Summary of Results

- Participants' knowledge about the defining criteria for learning disability was significantly better after training and remained significantly better at one-month follow-up. Hypothesis 1 was, therefore, accepted.
- Participants' knowledge about the term challenging behaviour, attributions about the causes of challenging behaviour and knowledge about management strategies did not increase after training, although significant differences were found in the type of answers provided. Hypothesis 2 could not be accepted.
- Participants' scores on the IIQ did not increase after training. Hypothesis 3 could not be accepted.
- Participants' confidence about working with children with a learning disability and challenging behaviour did not improve after training. Hypothesis 4 could not be accepted.
- There was no significant relationship between the number of years that participants had been teaching children with a learning disability and their confidence about working with children with a learning disability and challenging behaviour. Hypothesis 5 could not be accepted.
- There was no significant relationship between the number of years that participants had been teaching children with a learning disability and their knowledge about the defining criteria for learning disability or knowledge about management strategies for challenging behaviour.

3.6 Evaluation of Training

The training was evaluated by asking participants to anonymously complete an evaluation form immediately after the training. Ninety-five percent (38) of participants completed an evaluation form and the main results from this are shown in the table below.

Table 28: Summary of the Evaluation of the Training			
Question	Number & Percentage		
	Yes	No	
Do you feel that the training was pitched at the right level for your needs?	N = 38 100%	N = 0 0%	
Did the training cover all the areas you hoped it would?	N = 37 97.3%	N = 1* 2.7%	
Do you think you will use aspects of the training in your daily work?	N = 38 100%	N = 0 0%	
What did you think about the length of the training?	Too Short	About Right	Too Long
	N = 3 7.9%	N = 33 78.9%	N = 2 5.2%

*The participant who did not feel the training met all their needs stated that: ‘...would like to see a follow up, to brainstorm in groups ideas to help modify difficult behaviour.’

4.0 DISCUSSION

This study examined whether staff training improved participants' knowledge and confidence about working with children with a learning disability and challenging behaviour using a questionnaire devised for the purposes of testing the related hypotheses. In addition the study considered whether staff training improved participants' attitudes toward the inclusion of children with a learning disability in mainstream classrooms using the Impact of Inclusion Questionnaire (Hastings & Oakford 2003). Finally, the study aimed to establish if the number of years of experience that participants had teaching children with a learning disability and challenging behaviour was positively related to their confidence or knowledge about working with children with a learning disability and challenging behaviour.

The discussion will outline the results in relation to each of the study's hypotheses before then discussing each in turn. The methodological considerations of the study will then be discussed as well as the clinical and ethical implications. The discussion will end with suggestions for further research in areas related to the study's findings.

4.1 Interpretation of the Results

4.1.1 Teaching Staff's Knowledge about the Defining Criteria for Learning Disability

(Hypothesis 1)

Results showed that participants' means scores for identifying the defining criteria for learning disability were significantly higher immediately after training than prior to training and this difference was maintained at one-month follow-up. The results also showed a significant increase in the number of participants correctly identifying each of the three defining criteria for learning disability

after training. Finally, the results for this hypothesis showed a decrease in participants' use of incorrect alternative terms for learning disability and an increase in the use of correct alternatives. These results suggest that training significantly improved knowledge about the defining criteria for learning disability and hypothesis one was, therefore, upheld.

These findings, which showed that training significantly improved participant knowledge about the defining criteria for learning disability is consistent with previous research findings, which show that training improves knowledge about learning disability (McKenzie et al., 2000). Participant knowledge at one-month follow-up was also significantly better than prior to training supporting the notion that training improves knowledge in the longer term (McKenzie et al., 2000; Allen et al., 1997). Participant knowledge at follow-up had, however, dropped significantly compared to immediately after training, which suggests a loss of knowledge over time, raising concerns about whether these gains are temporary and unlikely to be sustained over a longer time period (Cullen, 2000). The above significant results involving follow-up data should be interpreted with caution given that the results may also be explainable by the impact of responder bias. Thus, it may be that the participants who responded at follow-up were the participants who had retained the relevant knowledge and those who did not respond were the participants who had not, which would result in data unrepresentative of follow-up knowledge. This limitation is discussed in more detail later, however, responder bias should be considered in this and future interpretations involving follow-up data.

No participant was able to identify all three criteria for learning disability prior to training. One participant was able to identify the IQ criterion, however, no-one identified the adaptive skills and age of onset criteria prior to training. This suggests very limited knowledge about learning disability prior to training and reflects previous research which has shown that teaching staff have limited

knowledge about other disorders considered under the umbrella term of special educational needs (Ghanizadeh et al., 2006; Sadler, 2005). The findings highlight that teachers may be failing in their professional obligation to be aware of the defining characteristics and needs of the children they teach (Ward, 1984).

Participants were significantly more likely to identify the IQ criterion after training and at one month follow-up than prior to training, and significantly more likely to identify the IQ criterion immediately after training than at one-month follow up. The same applied to participants' ability to identify the adaptive skills criterion, with the exception that there was no significant difference between pre-training and at follow-up. These results suggest that the increase in knowledge about the adaptive skills and IQ criteria is not sustained over time. The results also showed that participants were significantly more likely to identify the IQ criterion than both the adaptive skills and the age of onset criteria immediately after training. This supports previous research, which has also shown that impaired IQ is more readily identified within the learning disability definition (McKenzie et al., 1999a). In regards to this study, this finding may be due to the fact that a greater amount of time was spent on IQ related issues in the training than on adaptive functioning (see Appendices 9 & 10 for training handouts). It could be argued that the concept and assessment of intelligence is more complex than that of adaptive functioning and, therefore, warranted more time in the training, however, this might have contributed to the finding that impaired IQ was recalled more frequently than impaired adaptive functioning in participants' definition of learning disability after training.

The only significant difference in knowledge about the age of onset criterion existed between pre and post training, suggesting that participants were not any more likely to identify age of onset within their definition of learning disability one-month after the training than they were prior to the training. Given that teachers work exclusively with children, it is perhaps less relevant for them to

be aware of and remember the age of onset criterion given that this is automatically met in the population they work with. This might explain the poor recall of the age of onset criterion after training.

While there was some variance in the type and frequency of criteria identified over time, the main hypothesis was still supported by a significant increase in participants' knowledge of the defining criteria for learning disability after training and at month follow-up in comparison to their knowledge prior to training. It should be noted that the increase in overall knowledge at follow-up is likely to be due to an increase in participants' knowledge about the impaired IQ criterion rather than the adaptive skills or age of onset criteria. This should be taken into consideration when interpreting the overall increase in knowledge about the defining criteria for learning disability. The improved knowledge scores suggests that the use of a relatively short and inexpensive training package can help improve teaching staff's knowledge about what a learning disability is but in particular about the impaired level of intellectual functioning. It is not possible, however, to determine how this additional knowledge might impact on practice and the consequent quality of education for the child.

Ninety-three percent of participants provided a definition for the term learning disability prior to training and in order to summarise this information for the purposes of discussion all answers were encapsulated by 6 themes (see table 13). Forty-nine percent of participants provided information in their definition of learning disability that referred to a need for additional support (the most common theme identified). While this is applicable to the learning disability population (AAMR, 2002; BPS, 2000) it is also applicable to any child with special educational needs according to the Education (Additional Support for Learning) (Scotland) Act (2004). The identification of this theme cannot be taken, therefore, as evidence for knowledge about learning disability specifically.

Forty-one percent of participants made reference to children with a learning disability having difficulty learning or accessing the mainstream curriculum. The tendency was to associate this difficulty in learning to a specific aspect of cognitive functioning, such as attention or comprehension, rather than a global impairment in intellectual functioning. Only one participant made reference to a global impairment of intellectual functioning. As highlighted above, while this theme is applicable to children with a learning disability, it is not exclusive to this group and not part of the formal definition of learning disability. It is applicable to a broad range of children with a broad range of difficulties and, therefore, does not reflect a specific understanding of learning disability. A percentage (11%) of participants used alternative, incorrect terms to describe learning disability such as additional needs, special educational needs, which supports the above suggestion that teachers confuse the term learning disability with a general difficulty in learning and don't recognise it as a diagnostic label with associated diagnostic criteria. This finding supports previous research, which suggests that the term learning disability can be confused with specific learning difficulties such as dyslexia (Hames & Welsh, 2002). A small percentage of participants included reference to emotional or behavioural problems (16%) and physical problems (16%) in their understanding of the term learning disability. On the basis of these themes, it would appear that teaching staff can confuse the diagnostic term of learning disability with specific learning difficulties.

While no participants used any of these themes in their definition of learning disability immediately after training, there existed a tendency for teaching staff to revert back to the use of these themes at the one-month follow-up (see Table 14). It is perhaps not surprising that in the absence of accurate knowledge about learning disability teaching staff, who are employed to ensure the

educational needs of children are met, revert back to definitions that revolve around the educational need of the child.

There is insufficient evidence from previous research in this area to be able to predict if teaching staff's inaccurate beliefs about learning disability are maintained by the philosophy of the education sector to categorise children according to educational need or due to the use of a training package that was insufficient to change knowledge about learning disability in this participant group in the long term. What is clear, however, is that teaching staff's knowledge about the term learning disability is very low and reflects previous research which has shown that teaching staff have limited knowledge in other areas of special educational need (Ghanizadeh et al., 2006; Sadler, 2005), therefore, suggesting that this problem is not specific to the term learning disability but other disorders. Research has shown that teachers' recognise this gap in knowledge and are requesting specific training about the specific disorders that children they teach present with (Rose, 2001) suggesting that understanding a child by their educational need only might not be sufficient for successful inclusion.

4.1.2 Teaching Staff's Knowledge about Challenging Behaviour (Hypothesis 2)

Considering all the findings for hypothesis 2, there was insufficient evidence to accept it. A summary of the results and a subsequent discussion of each finding in hypothesis 2 follows.

4.1.2.1 Knowledge about Challenging Behaviour

The first part of hypothesis two stated that participants' knowledge about the defining criteria for the term challenging behaviour would improve after training.

Results showed that participants' knowledge about the term challenging behaviour was significantly better at follow-up than prior to and immediately after training. Participants were significantly more likely to identify the function of challenging behaviour in their definition prior to training than safety issues, limited access to services or behaviour that was difficult for services to cope with. This difference was lost after training and at follow up and participants were no more likely to identify one criterion over another at these time points. Participants were significantly more likely to identify safety issues in the definition of challenging behaviour at follow up than they were prior to training. These results suggest that training had a significant impact on changing the type of knowledge held about the term challenging behaviour after training. While knowledge significantly increased at one-month follow-up in comparison to prior to training there was no significant increase in knowledge about the definition of challenging behaviour immediately after training. Reasons for this finding will be discussed below, however, given that training did not improve knowledge immediately after training this part of hypothesis two was not accepted.

It is unclear as to why participants' knowledge about the term challenging behaviour improved at follow-up but not immediately after training. The researcher is unaware of any additional training or events that occurred within the one-month period after training that may have had a positive effect on their knowledge about challenging behaviour. The one variable that is known to have been present at follow-up but absent immediately after training was the training handouts. It may be that participants used the handouts to support their answers at follow-up, which would explain the improved answers. Participants collected the handouts as they left the training event, which ensured that the answers they provided immediately after training were not taken directly from the handouts, however, there was no way of ensuring that participants did not use the handouts at

follow-up. A positive outcome of this, while possibly skewing the results, is that participants may have refreshed their knowledge through the use of their handouts. Another influencing variable that may explain the significant finding between pre and follow-up knowledge is the influence of time constraints. The training finished between 7.30 and 8pm after a full working day for all participants and while having the training as a twilight session enabled a larger group to be recruited it may also have resulted in participants rushing the questionnaires in order to get home. Having more time and motivation to complete the questionnaires at follow-up may help explain this finding. The sample size at follow-up was smaller than pre and post training numbers and this should be considered as a possible influencing factor in the significant finding between follow –up and pre training knowledge.

At all three time points the mean challenging behaviour knowledge score was less than two out of five, indicating a rather poor overall understanding of the term challenging behaviour. Previous research suggests that staff from the social care sector tend to define challenging behaviour as a management problem and neglect behaviours that would be considered under standard definitions such as the one used in this study (Hastings, 1995; Lowe & Felce, 1995; Lowe et al., 1995). This may also apply to staff in the education sector. The term challenging behaviour is used frequently throughout the health and social care sectors but less so within the education sector, where the tendency is to use the more generic term of ‘emotional and behaviour difficulties’ (EBD) or ‘social emotional and behavioural difficulties’ (SEBD) (Visser & Cole, 2003). The latter is favoured in Scotland. The Scottish Executive are reluctant to provide a definition for SEBD in order to avoid labelling children (Scottish Executive, 2001) and it is, therefore, considered a subjective and professional judgement (Lloyd & O’Regan, 1999). It is recognised, however, that a child who has social, emotional or behavioural difficulties, including challenging behaviour will have special

educational needs (Scottish Executive, 2001). A number of comprehensive definitions of EBD exist within the literature (e.g. Department of Education, 1994a; Department of Education, 1994b). An example of such a definition is;

“...Children and young people who demonstrate features of emotional and behavioural difficulties, who are withdrawn or isolated, disruptive and disturbing, hyperactive and lack concentration; those with immature social skills; and those presenting challenging behaviours arising from other complex special needs, may require help or counselling....”

(Department of Education, 2001; p.87)

This definition makes no references to safety issues, limited access to services or reference to the behaviour being a challenge to services as the Emerson definition (1995) does. It does, however, make reference to topography, which was identified by almost 30% of participants prior to training. If this definition is representative of educational staffs' understanding of challenging behaviour and if the term challenging behaviour itself is not well recognised within the education sector then this may help to explain the poor knowledge of the definition and the tendency to refer to function and topography most frequently prior to training. While the categories used for scoring participants' understanding of challenging behaviour were based on previous research (McKenzie et al., 1999c) and reflected the well utilised Emerson definition of challenging behaviour (Emerson, 1995), retrospectively, they might not have been the most appropriate categories for capturing teaching staff's knowledge in this area.

Participants were significantly more likely to identify function over all the other criteria except topography. This tendency to outline the function of a behaviour without undertaking a formal

functional analysis (Sturmey, 1996; Xeniditis et al., 2001) may result in an inaccurate function being identified and consequently, may affect teaching staff's response to the child (Hastings & Remington, 1994a). Previous research findings support the notion that staff are not always able to appropriately identify the function of challenging behaviour (Oliver et al., 1996) even when they are provided with comprehensive information outlining the target behaviour (Morgan & Hastings, 1998).

The tendency for participants to identify the behavioural topography prior to training reflects findings from previous research, which states that challenging behaviour is often identified by topography (Hastings et al., 1997) due to the fact that it is the most clear of all the variables to identify.

There were no significant differences between any of the criteria identified immediately after training or at the one-month follow-up suggesting that this tendency to refer to the function of the behaviour disappeared after training. Participants were significantly more likely to identify safety issues as a feature of challenging behaviour at follow-up than they were prior to training. These findings suggest that while training did not increase the overall knowledge scores in relation to challenging behaviour, it did affect the type of answers provided. The lack of variance between the criteria identified after training and at follow up suggests that participants had a broader understanding of the term challenging behaviour after training. It also reduced the tendency for participants to refer to the function of behaviour and this may be viewed as a positive change given that none of the participants had received formal training in functional analysis. The significant increase in the identification of safety as a dimension of challenging behaviour at follow-up suggests that participants' awareness of the risk that certain behaviours present to themselves or

others increased. The increased awareness of risk may have a positive effect on participants' ability to meet their duty of care to keep themselves and others safe (McKay, 1991).

4.1.2.2 Attributions About Challenging Behaviour

The second part of this hypothesis stated that participants' attributions about the causes of challenging behaviour in children with a learning disability would improve after training. In addition it stated that training would increase the identification of external, uncontrollable, unstable and universal attributions over internal, controllable, stable and personal attributions, respectively.

Prior to training and immediately after training, the results showed that participants were significantly more likely to identify internal, stable and personal causal models for challenging behaviour over external, stable and universal causal models respectively. At the one-month follow-up participants were more likely to identify internal and stable causal models over external and unstable causal models respectively. There were no significant changes in the frequency of any of the causal models identified by participants after training. The above results suggest that training had no impact on the type or frequency of causal attribution made about challenging behaviour. No support was lent to hypothesis 2 from these findings.

Previous research in this area (all conducted within health and social care) has found inconsistent results, with some authors showing that training changes attributions (Dowey et al., 2007), in particular attributions about emotional causes of challenging behaviour (McGill et al., 2007) and others showing no change (Lowe et al., 2007) or no sustained change (Lowe et al., 2007). Given that attributions may be closely linked to staff behaviour it is important to establish a robust way of promoting positive attributions with a view to increasing the likelihood of helping behaviour in staff (Weiner, 1980; Weiner, 1993). There has been no previous research examining the impact of

training on teaching staff's attributions about challenging behaviour and it would, therefore, be necessary to replicate the results of the present study before considering more intensive or longer term interventions.

Significant differences were consistently found in relation to the types of attributions made about the causes of challenging behaviour at all three time points. Participants were significantly more likely to identify internal, stable and personal attributions over external, unstable and universal attributions respectively, before and after training. This potentially has implications for the way teaching staff respond to challenging behaviour displayed by children with a learning disability in their class. Weiner's attribution model of helping behaviour (Weiner, 1980; Weiner, 1993) proposes that the dominance of these types of casual attributions (i.e. that behaviour is caused by internal, stable and personal factors) results in feelings of anger towards the child and an increased likelihood of less helping behaviour or support. This may, in turn, exacerbate the occurrence or intensity of the behaviour being displayed (Oliver, 1993; Hastings & Remington, 1994b) thus increasing the risk of injury to the child (Borthwick-Duffy, 1994) and others (Spreat et al., 1986) and adding to the levels of stress experienced by the teacher (Male & May, 1997a; Male & May, 1997b) and the levels of distress experienced by the child (BPS, 2004). In addition less helping behaviour in an educational setting may have in a detrimental effect on the child's educational experience. The principles of inclusion and the subsequent political drives to enforce these principles (e.g. Education (Additional Support for Learning) (Scotland) Act, 2004) focus on the importance of creating a positive and optimal experience for all children regardless of ability or disability. If teaching staff reduce their helping behaviour towards children with a learning disability on the basis of the occurrence of challenging behaviour and the consequent attributions made about it then concern must be raised about the ability to create a truly inclusive environment.

In relation to the causal models outlined in the CHABA (Hastings, 1997b), participants were most likely to attribute emotional causes to challenging behaviour prior to training, which reflects a controllable and internal attribution and, is, therefore, consistent with the above findings. Previous research using the CHABA has shown that training significantly reduces the likelihood of emotional attributions being made (McGill et al., 2007; Lowe et al., 2007). Adjustments for multiple comparisons meant that no significant differences were found between the emotional attribution theme across time in this study. The trend, however, of a decrease in the use of emotional attributions after training is consistent with previous research.

In summary, the above results suggest that training does not significantly affect the attributions that teaching staff make about the causes of challenging behaviour in children with a learning disability. Given the possible significance that the types of attributions made have on staff behaviour and the inconsistent findings about the impact that training has on changing these attributions coupled with the lack of attribution-based research undertaken about children with a learning disability in the education sector, it is important that future research endeavours to ascertain the nature of teaching staff's attributions about challenging behaviour and ways of addressing possible negative attribution types.

4.1.2.3 Knowledge of Management Strategies for Challenging Behaviour

The final part of hypothesis two stated that participants' knowledge about the management of challenging behaviour would improve after training.

Results showed no significant increase in participants' knowledge about strategies used in the management of challenging behaviour after training. There were, however, significant differences found between the types of strategy identified at each time point. Participants were significantly

more likely to identify environmental, reactive and psychological principles than they were positive programming prior to training. With the exception of the difference between environmental strategies and positive programming these differences remained significant immediately after training. At follow-up the only difference to exist was between reactive and positive programming strategies. There were no significant changes in the frequency of any of the strategy types identified by participants after training. The above results suggest that training had no impact on overall knowledge about the management of challenging behaviour, however, significant differences existed within the types of management strategy identified at each time point and these differences changed at each time point.

These findings suggest that training had a limited impact on improving teaching staff's knowledge about the management of challenging behaviour, despite having a significant impact on the type of knowledge displayed. Prior to training, participants were significantly less likely to identify positive programming than any of the other management strategies (environmental, reactive and psychological principles). The ability to apply all three management strategies (reactive, psychological principles and positive programming) is highlighted as important in the effective management of challenging behaviour (BPS, 2004) with a particular emphasis on the need for positive programming to change behaviour in the longer term. The skills involved in positive programming (e.g. chaining and shaping behaviour) are perhaps less likely to be applied by staff with no training in this area and this lack of experience may help to explain why it is more likely to be neglected when participants were asked to outline the ways in which they manage challenging behaviour.

At follow-up there was only one significant difference, between reactive strategies and positive programming, which suggests that the participants had a broader knowledge about ways of

managing of challenging behaviour after training. Reactive strategies were identified consistently more than other strategies across all three time points which is in line with previous research that found that support staff are significantly more likely to identify reactive strategies (Male, 2003; McKenzie et al. 1999c). Previous research also suggests that the use of reactive strategies does not change after training and are utilised as frequently as before training (Allen et al., 1997) and, therefore, supports this study's finding. A number of participants identified psychological principles as important in managing challenging behaviour prior to training. This may reflect the relatively frequent use of psychological principles in the education system to promote classroom discipline. Several participants provided examples such as the use of star charts to engage pupils in academic activities, the use of traffic lights to act as a behavioural management program for all children in the class and clear reward systems for good behaviour. Regular classroom rules appear to take the form of well-organised psychological principles. A review of the literature promotes the use of psychological principles in the management of children's behaviour in the classroom (e.g. Bear, 1998). The current study suggests that teaching staff are able to identify reactive strategies and psychological principles in the management of challenging behaviour in children with a learning disability, however, even with training they are significantly less likely to be able to identify positive programming approaches. It is perhaps necessary to consider further ways of supporting teaching staff to change children's behaviour in the longer term, which may involve training in the skills involved.

In summary, the results suggest that a one off training event has helped to broaden the knowledge held by teaching staff with regards to attributions about, and the management of challenging behaviour, however, it has not significantly increased overall knowledge. The question exists, therefore, as to why knowledge changes but does not improve in terms of the amount of

knowledge demonstrated. It may be that after training, participants provided answers that reflected their newly acquired knowledge, which they gained from the training and neglected to repeat the information, which they identified prior to training. This would help to explain why knowledge changed but did not increase. It may also be that the questionnaire itself or the system used to score the questionnaires did not truly capture improved knowledge. Finally, with regards to defining challenging behaviour, the different terminology used in education and health to refer to challenging behaviour may help explain the poor findings of the first part of this hypothesis. These issues will be discussed in more detail later.

4.1.3 Teaching Staff's Attitudes Towards Inclusion (Hypothesis 3)

The results to hypothesis 3 showed no significant difference between participants' scores on the IIQ after training. The score on the IIQ reflected participants' attitudes towards the inclusion of children with a learning disability and challenging behaviour in mainstream classrooms and, therefore, this finding suggests that training did not significantly improve attitudes towards inclusion. This hypothesis was not accepted.

Participants' scores on the IIQ across the three time-points changed very little suggesting that their attitudes remained stable across time regardless of the training intervention. This is consistent with the idea that some attitudes can be difficult entities to change and remain stable across time, (Hogg & Vaughan, 2005) but is inconsistent with research that suggests training and the addition of knowledge can improve attitudes about learning disability and challenging behaviour (Lowe et al., 2007). It has been found that younger participants (18-25) are more susceptible to attitude change (Hovland et al., 1952) and this may help to explain the lack of significant attitude change found in this study, given only one participant was less than 25 years old.

In addition the training package used in this study was not devised to change attitudes but was developed to improve knowledge. Changes in attitude were, therefore, reliant on participants gaining more knowledge about learning disability and challenging behaviour. This hypothesis was based on the research that suggests improved knowledge can impact positively on attitudes (Lowe et al., 2007). While training improved knowledge about learning disability it did not improve knowledge about challenging behaviour, therefore, not providing an optimal situation to promote attitude change. Research also suggests that attitudes towards inclusion improve after training when the training is developed specifically to address attitudes towards inclusion (Dickens-Smith, 1995; Jobe, 1996). This is in contrast to this study and may help to explain the non-significant result. Further research investigating the effect of staff training on attitude change about learning disability may need to focus on training packages devised specifically for this.

The standard deviations on the IIQ scores were consistently large suggesting a broad range of views about inclusion. Ajzen (1991) argues that there is a relationship between attitudes and future behaviour towards the attitude object, in this case children with a learning disability and future research could give more consideration to the range of IIQ scores and the impact on actual behaviour. It is proposed that all children have the right to gain maximum benefit from mainstream education (Scottish Executive Education Department, 2005) and the attitudes of teaching staff towards the child's right to inclusive education may influence their behaviour towards the child (Ajzen, 1991; Madden et al., 1992) and in turn influence the child's educational experience.

Previous research suggests that negative attitudes towards inclusion are associated with the amount of extra support required by the child (Center & Ward, 1987). This implies children with a learning disability may be the subject of negative attitudes given the levels of support that they are likely to require (AAMR, 2002, BPS, 2000). Children with a learning disability have also been

shown to be the subject of less positive attitudes over children with other disabling conditions (Bowman, 1986). More recent findings suggest, however, that attitudes have become more positive as the drive for inclusion has increased (e.g. Education (Additional Support for Learning) (Scotland) Act, 2004) (Hastings & Oakford, 2003; Avramidis et al. 2000). Given the on going political drive to promote the principles of inclusion it may be anticipated that attitudes will continue to improve, however, the findings from this study are not conclusive with regards to the types of attitudes that currently exist and it suggests that training aimed at improving knowledge does not have any impact on improving attitudes.

4.1.4 The Impact of Training on Confidence of Teaching Staff (Hypothesis 4)

The results showed that participants' confidence about working with children with a learning disability and challenging behaviour did not improve significantly after training, therefore, hypothesis 4 could not be accepted.

This finding contradicts those from previous research, which have shown an improvement in confidence about working with people with a learning disability and challenging behaviour after training (Murray et al., 2000; Lowe et al., 2007; McKenzie et al., 2004). The former of these studies demonstrated an increase in confidence after training in male participants but failed to find a similar increase in female participants. It may be that a similar gender difference would explain the lack of findings in this hypothesis, given that only one male participated in this study, which is reflective of the gender split in teaching (Department of Education & Skills, 2007). Further research would establish if female teaching staff's confidence is less affected by training than their male colleagues. Lowe et al. (2007) found an increase in confidence about working with challenging behaviour after an intensive 10-day training course for nurses. The populations from

these studies were from the health (Lowe et al., 2007) and social care (Murray et al., 2000) sectors and the types of training differ from that provided in the current study.

The non-significant results may be explained by some of the findings from hypothesis one. Teaching staff's knowledge about learning disability prior to training highlighted a number of misconceptions about what they felt the term learning disability meant, including a belief that it was a specific cognitive deficit, a general difficulty in learning or accessing mainstream curriculum. No reference was made to a global impairment of intelligence and, therefore, it can be assumed that participants were unaware of the severity of difficulties that children with a learning disability may face and the levels of support that they will require (AAMR, 2002; BPS, 2000). It may be that by providing participants with accurate information about learning disability, it highlighted gaps and misconceptions in their own knowledge that they had previously not realised. This may help to explain the fact that confidence did not increase.

Finally, the training program was information based and there exists an argument that training is more effective when information and exposure to situations covered within the training are combined (e.g. Golder et al, 2005; Johnson & Cartwright, 1991). The use of role plays or case vignette discussions in relation to working with children with a learning disability and challenging behaviour may have helped participants develop confidence in strategies for working with this population.

4.1.5 Relationship Between Experience & Confidence (Hypothesis 5)

This hypothesis proposed that a significant positive correlation would exist between participants' experience of teaching children with a learning disability and their self-rated levels of confidence about working with children with a learning disability and challenging behaviour. The results

showed no significant relationship between the number of years that participants had been teaching children with a learning disability and their self rated levels of confidence about working with children with a learning disability and challenging behaviour. Hypothesis 5 could not be accepted.

It is perhaps somewhat surprising that experience of teaching children with a learning disability had no impact on self-rated confidence about working with this population and consideration as to why no relationship exists between confidence and experience leads to a number of suggestions that would need further investigation to establish. Previous research suggests that teaching staff do not receive any compulsory training or support in relation to the management of challenging behaviour (Rose, 2001) and are, therefore, more likely to rely on the manipulation of disciplinary strategies that they use for general classroom management as discussed in hypothesis 2. It is unlikely that general disciplinary strategies will be consistently effective in managing challenging behaviour in children with a learning disability without a comprehensive assessment of the behaviour (BPS, 2004). It maybe, therefore, that with experience comes a realisation that they are not properly equipped to manage the increasingly challenging behaviour that presents in classes as a consequence of the drive for inclusion (Avramidis et al., 2000; Rose, 2001). The lack of ongoing support or training about working with children who display challenging behaviour may have a negative impact on the natural relationship expected to develop between experience and teaching staff's confidence about managing challenging behaviour. Similarly, without relevant support or training, teaching staff may feel unequipped to teach children with a learning disability (Rose, 2001). This may also have implications for the development of their confidence.

Behavioural difficulties occur in children other than those with a learning disability (Visser & Cole, 2003) and such children are equally likely to be educated in mainstream settings. Consequently, teaching staff may face challenging behaviour on a regular basis. It could be argued that with an increased exposure to managing challenging behaviour teaching staff would grow in confidence. The opposite effect might also be explainable on the basis of the type of experience that teaching staff have with challenging behaviour. Without appropriate training and support in the management of challenging behaviour teaching staff might find the task of managing challenging behaviour more stressful and anxiety provoking than if they were equipped with the necessary knowledge and skills. Should this be the case then confidence may well be affected also. The types of experience that teaching staff have with children with a learning disability may also affect the development of their confidence in working with them (e.g. negative experiences may result in reduced confidence and positive experiences in increased confidence).

Further research investigating the interaction between experience and confidence, including other factors that may affect this relationship, may help to explain the findings of this hypothesis and add to the currently limited research about the effect of experience on confidence, particularly within the education sector.

4.1.6 Relationship Between Experience and Knowledge (Hypothesis 6)

This hypothesis stated that a significant positive correlation was expected between participants' experience of teaching children with a learning disability and their knowledge about working with children with a learning disability and challenging behaviour. Results showed no significant relationship between the number of years that participants had been teaching children with a learning disability and knowledge about the defining criteria for learning disability or knowledge

about management strategies for challenging behaviour. The non-significant findings meant this hypothesis could not be accepted.

The results of hypothesis 6 contradict previous research, which has found a significant positive relationship between years experience and knowledge in the same field (McKenzie et al., 2004, Johnson & Cartwright, 1991; Ainscow, 1999). Hasting & Remington (1998) did, however, show that there was no difference between teachers and teaching auxiliaries' knowledge about the function of challenging behaviour suggesting that knowledge and experience aren't always positively related.

One of the main explanations for the non-significant findings may be in relation to the terminology differences that exist between health and education. It was clear from the findings of hypothesis one that teaching staff were not aware of the term learning disability and made several misconceptions about the defining criteria for it. Participants tended to refer to learning disability as a specific learning difficulty, a need for additional support or a difficulty accessing mainstream curriculum (Table 13). These criteria are consistent with the definition for additional needs or SEN (Visser & Cole, 2003, Education (Additional Support for Learning) (Scotland) Act, 2004). The variable used in this hypothesis to reflect knowledge about learning disability was participants' ability to identify the defining criteria for learning disability. It is likely, therefore, that there was no relationship between experience and knowledge about learning disability because the term learning disability is not utilised in the education sector. Unfortunately, there is no term used in the educational setting that is directly comparable to the term learning disability so it would not have been possible to use an educational equivalent. The fact remains that while teachers admit to having experience of teaching children with a learning disability, they have a very poor knowledge of the term and its defining criteria.

The lack of relationship between experience and knowledge about challenging behaviour is perhaps more difficult to explain. Previous research has shown that staff with more experience of working with learning disability demonstrate better knowledge about the management of challenging behaviour (McKenzie et al., 2004).

The choice of variable used in the analysis may help to explain this finding. The total number of types of management strategies identified by participants was used to reflect knowledge about managing challenging behaviour. Some participants provided several answers, which fell under one type of management strategy, therefore, this scoring strategy did not take into account the number of answers provided within each strategy type. For example, if a participant gave the examples of ignore, redirect, praise, remove from the class, they would all be considered under reactive strategies and a score of 1 would be allocated. Equally if a participant gave 'praise' only in their answer they would still be awarded a score of 1 on the basis of identifying a reactive strategy. This scoring method may not have captured true knowledge about management strategies and may have, therefore, compromised any potential positive relationship in this hypothesis.

Future research would be need to ascertain if teaching experience of working with children with a learning disability does not improve knowledge about managing challenging behaviour or if this finding was due to the methodological limitation outlined above.

4.1.7 Summary

It is clear that participants had a very limited knowledge about the term learning disability prior to training, however, this significantly improved after training. There was a tendency, however, for this knowledge to drop over time and for participants to revert back to the use of inaccurate descriptions of the term learning disability. Teaching staff were also more likely to re-call the IQ

criterion for the definition of learning disability at the follow-up stage than either of the other two criteria and it is likely that the overall improved knowledge score was largely due to retained knowledge about the IQ criterion. These findings suggest that teaching staff are likely to need refresher training courses or a more comprehensive training package in the first instance to sustain knowledge change over time.

Training did not improve knowledge about working with challenging behaviour across 3 levels; understanding of the term challenging behaviour, attributions about challenging behaviour and management of challenging behaviour. There was, however, significant changes in the type of knowledge displayed after training in all of these areas, suggesting that while training may not improve knowledge it does broaden participants' knowledge base. Concerns exist as to the sensitivity of the questionnaire and the scoring method in relation to detecting knowledge change.

Finally, the amount of experience that teaching staff had of teaching children with a learning disability had no impact on their confidence and knowledge about working with this group. The following section will consider the methodological limitations of this study.

4.2 Methodological Considerations

4.2.1 Questionnaire Development

The first methodological consideration is in relation to the use of a non-standardised questionnaire with limited psychometric properties. The questionnaire was adapted from one used in previous research (McKenzie et al., 2000) where it conformed to a number of standards outlined by Dickens & Stallard (1987) including objectivity, reliability, validity and social validity. It was not, however,

designed for use within the education sector and, therefore, the psychometric properties relating to questions in the questionnaire may not be applicable for use with teaching staff. Given the absence of any similar questionnaires from research within the education sector it was necessary to find a questionnaire that had been used for similar purposes albeit in a different sector and adapt it for the needs of this study. Minor alterations were made in order to gather demographic information and information for the hypotheses involving participants' confidence. Inter-rater reliability scores were consistently good (see Appendix 16 and Table 7) and the questionnaire was piloted with a population representative of the study's participant group, which established face and social validity. Nonetheless, consideration should be made for the fact that this questionnaire was not standardised for use with teaching staff and the results should be interpreted with this in mind.

Psychometrics aside, the advantages and disadvantages of using a questionnaire as a research method are well documented (Burton, 1990; Case, 2002) and detailed descriptions exist on the systematic process for designing questionnaires (e.g. StatPac Inc. 2003). The advantages of using a questionnaire research method (e.g. economic, cost effective, maintains anonymity) (Tao, 2003) and open questions (less risk of biasing responses, richer and more accurate information) (Vinten, 1995) were important for strengthening the study's methodology, however, the disadvantages are also recognised. Within the disadvantages are a possible low response rate due to the effort required to complete the questionnaire, risk of participants misunderstanding the questions and a slow response time at follow-up. At the post training time point the disadvantages of using open-ended questions may have been more pertinent. Participants may have been less motivated to complete the questionnaires and, therefore, may have put in less effort than prior to training given that they had received the training, were no longer obliged to stay and perhaps keen to go home.

This may have impacted on the quality of questions provided after training and consequently may help explain the lack of differences found between pre and post training knowledge.

As mentioned earlier, the scoring of some of the answers did not take into consideration the number of correct themes identified, such that a participant would be awarded a score of 1 whether they provided one or ten examples of the same theme. While the identified themes were drawn from previous research (e.g. Peterson et al., 1982; Stratton et al., 1991; Noone et al., 2006; Hastings, 1997a; McKenzie et al., 2000; Hastings & Remington, 1994; Donnellan et al., 1988; BPS, 2004; La Vigna et al., 1989) the scoring system may not have been sufficiently sensitive to the range and depth of knowledge held by the participants and consequently may have impacted on the findings in this study.

The questionnaire developed for this study aimed to extract knowledge from participants about working with children with a learning disability and challenging behaviour, however, the answers provided by participants may not reflect what they do in practice. While their knowledge of the terms learning disability and challenging behaviour may have been captured effectively within the study, research suggests that discrepancies exist between what staff members report and what is observed in their actual practice (Hastings & Remington, 1994).

4.2.2 Staff Training

The staff training was also adapted from a training package evaluated with health (McKenzie & Paxton, 2002) and social care (McKenzie et al., 2000) staff and was, therefore, not intended for use with teaching staff. Given the lack of research in the area of teaching staff knowledge about learning disability and challenging behaviour, the use of a pre-existing, relevant and evaluated training package was deemed more appropriate than developing a new training pack for teaching

staff. The adaptations to the training package were considered extensions of pre-existing training points and were added to accommodate the educational aspects relevant to the participant group. The training was also evaluated at the end and was positively rated by participants across a number of domains including its relevance and applicability to daily practice (Table 28). This supported the use of this training package with teaching staff. Nonetheless, the training package had not been evaluated with staff from the education sector prior to use in this study and the appropriateness of this training package for changing knowledge about learning disability and challenging behaviour in teaching staff may be questionable.

4.2.3 Sample Size

The reduced response rate at follow-up (19/40), while greater than that typically found in postal surveys (Babbie, 1998), had implications for achieving statistical power in some of the analyses (Cohen, 1992; Clark-Carter, 2004). While the numbers achieved at the pre and post training time points were sufficient for statistical power (Cohen, 1988; Cohen, 1992; Clark-Carter, 2004) a significant amount of data was not used from the pre and post time points in the paired samples t-tests that used follow-up data. It is unclear whether the data used in the follow-up analyses was representative of the whole data set. While 19 gives a reasonable level of statistical power (Cohen, 1992; Clark-Carter, 2004), some of the analyses used data from 16 participants and this is less likely to be considered a suitable number for reasonable statistical power.

Consideration should be given to the impact that this reduced data had on the final results. Every effort was made to encourage a maximum response rate at follow-up, including contact with head teachers asking that they remind teachers to complete the follow-up questionnaires, however, it is possible that time constraints restricted the final response rate.

4.2.4 Time Limitations

Should there have been more time available, it would have been possible to re-send the follow-up questionnaires with the hope of improving the response rate. Time constraints also meant that only a one month follow-up was assessed and it was, therefore, not possible to ascertain if gains were maintained over the longer term. The knowledge of participants who did not complete the follow-up questionnaires may have differed from the knowledge of those who did. This may help to explain why some findings were significant at follow-up but not immediately after training.

4.2.5 Generalising the Study's Findings

It is difficult to ascertain to what extent the findings of this study can be generalised to teaching staff in other geographical areas or educational settings. No secondary schools were recruited to take part in this study and all except one of the participants were working in mainstream classrooms. It would be interesting to know if similar findings existed in more specialist education settings where the prevalence of children with a learning disability would be higher (e.g. behaviour support and learning support units). Unfortunately, no similar research is available from secondary schools or more specialist units to compare this study's findings with. Research does suggest, however, that similar levels of low knowledge about learning disability and challenging behaviour exist within other areas such as health and social care (McKenzie et al., 1999a, McKenzie et al., 1999b, McKenzie et al., 2000, Hastings & Remington, 1994) and across different geographical areas (Hastings & Remington, McKenzie et al., 1999a).

4.3 Ethical & Clinical Implications

One of the main ethical implications of this study is in relation to teaching staff's misunderstanding about what the term learning disability means. In addition to a very limited knowledge about the defining criteria for learning disability, there was also a lack of awareness of the severity of the impairments related to having a learning disability. This raises concerns that teaching staff are not meeting their professional and legal obligation to know about the defining characteristics of learning disability (Ward, 1984). Without this knowledge it is unlikely that they will be able to meet all the needs of the child and apply appropriate strategies when working with them (Wolitzky et al. 1972; Numminen et al., 2000; McKenzie & Murray, 2002). This has implications for a child gaining maximum benefit from their education as proposed by recent legislation (Scottish Executive Education Department, 2005), therefore, challenging the main principle of inclusive education. In addition though this lack of knowledge about learning disability and possible lack of skills for working with children with a learning disability may exacerbate the occurrence of challenging behaviour (Oliver, 1993; Hastings & Remington, 1994b) and possible risk to the child (Borthwick-Duffy, 1994) and others (Spreat et al., 1986) thus creating further ethical issues. This is also a concern in relation to the findings from hypothesis 2, which showed a tendency to attribute challenging behaviour to internal and stable causes even after training. This is associated with more anger towards the child and less helping behaviour (Weiner, 1980; Weiner, 1993), which again creates ethical concerns about having children with a learning disability in classrooms where such attributions are made.

It would appear that teachers have developed a reasonable understanding about management strategies for challenging behaviour without any training, however, it is unclear how these are applied in practice. Teaching staff were also more likely to refer to the

function of challenging behaviour in their definition suggesting that they are making assumptions about why children with a learning disability display challenging behaviour. Given they are unaware of what a learning disability is, including the severity of needs of someone with a learning disability (AAMR, 2002; BPS, 2000) and given they have no training in functional analyses there exists concerns about the appropriateness of how they support children with a learning disability and challenging behaviour in mainstream classrooms.

The drive for inclusive education means that all children are legally required to be educated in mainstream classrooms, however, there does not appear to be the knowledge and skills base within teaching staff to accommodate the needs of children with a learning disability. This study also suggests that experience of teaching children with a learning disability does not affect knowledge and confidence about working with children with a learning disability. If experience has no effect on knowledge and confidence then effective interventions that successfully improve knowledge and confidence need to be identified. Teaching staff have raised concerns about not having suitable knowledge and thus a reduced confidence about working with children with specific disorders (Rose, 2001). In order to reduce the negative impact that inclusion may have on children and teaching staff, effective training must be provided.

This study also highlighted the existence of a range of attitudes towards the inclusion of children with a learning disability in mainstreams settings and attitudes have been shown to impact on behaviour towards the attitude object (Baron & Byrne, 1991). Current legislation directs that all children should receive the necessary support to benefit fully from their education (Education (Additional Support for Learning) (Scotland) Act, 2004) and negative attitudes have been instigated as the most important factor in the success or failure of inclusive policies (Avramidis et al., 2000; Chow & Winzer, 1992). These factors coupled with the range of attitudes highlighted by this study

suggest that the likelihood of children benefiting fully from their education is dependent on the attitudes that their teacher holds towards their inclusion in mainstream classes. In addition to this ethical implication, the staff training used in this study had no impact on changing attitudes supporting previous research that suggests training specifically targeted at improving attitudes should be utilised (Dickens-Smith, 1995; Jobe, 1996).

In summary, there are a number of factors that result in ethical concerns about placing children with a learning disability in mainstream settings, including poor knowledge about learning disability, negative attributions about challenging behaviour and the existence of a range of attitudes towards inclusion.

For psychologists working in child services the implications are likely to be increased levels of challenging behaviour in schools that are, in part, due to teaching staff not having sufficient knowledge about working with children with a learning disability and challenging behaviour. One of the drives for undertaking this study was in response to the number of referrals to the local CAMH service that involved increased levels of unmanageable challenging behaviour in school. If the principles of inclusion mean that children are placed in settings not appropriately equipped with knowledge and skills to support them then clinical psychologists may find an increase in these types of referrals.

In spite of the methodological limitations outlined earlier, the findings of this study highlight a number of areas, which may require further research, some of which have been outlined earlier. The next section will outline areas for further research.

4.4 Implications for Future Research

The current limited research in the area of teaching staff's knowledge about working with children with a learning disability and challenging behaviour coupled with the on-going drive for including children with a learning disability in mainstream settings supports the need for further research similar to that undertaken in this study. This study aimed to ascertain the knowledge of teaching staff in relation to working with children with a learning disability and challenging behaviour and the impact of staff training on improving knowledge. Conclusions suggest that knowledge is low and staff training has limited effect in a number of areas, especially in relation to challenging behaviour. Given that children with a learning disability have been shown to display a number of different types of challenging behaviour in class (Kiernan & Kiernan, 1994; Visser & Cole, 2003) it is important that effective interventions are established to help improve teachers' knowledge about the management of challenging behaviour. It is proposed that an improvement in staff knowledge, attributions and emotional responses is associated with better staff performance and, therefore, better outcomes for children with a learning disability (McGill et al., 2007). It has also been suggested that knowledge does not always reflect practice (Hastings & Remington, 1994), therefore, in addition to considering ways of improving teaching staff knowledge, future research should also consider the use of observational methods of, or ongoing practical support for, teaching staff in their management of challenging behaviour.

Given that children with a learning disability are likely to be consistently placed in mainstream classrooms (Education (Additional Support for Learning) (Scotland) Act, 2004) it is essential that teachers have a proper understanding of learning disability generally as well as the implications of having a learning disability for individual children. This study suggests that training improves knowledge about the defining criteria for learning disability, however, there does not exist any

specific training for teaching staff about working with children with a learning disability. Previous research in similar areas has considered the effect of additional training for student teachers in the area of special educational needs (Golder et al., 2005), which by definition includes a large range of disorders, however, does not include specific training about learning disability. Further research could consider whether an understanding in special educational needs would improve knowledge about learning disability, which in turn would identify the need for teachers to receive specific training in individual disorders. Ultimately, the research suggests that teachers are requesting additional training to support their knowledge and confidence in the areas of SEN (Rose, 2001) and also in the area of specific disorders, such as learning disability (Avramidis et al., 2000), and a lack of knowledge about learning disability is identified in this study. This study supports the need for finding an effective way of improving teaching staff's knowledge base and skill levels for working with children with a learning disability and challenging behaviour. This may help to improve the child's educational experience, the chances of inclusion being a success and to reduce teaching staff's stress created by a lack of appropriate skills and knowledge.

5.0 CONCLUSIONS

This study aimed to investigate the impact that a half-day training event had on teaching staff's knowledge about the defining criteria for learning disability and challenging behaviour, confidence about working with children with a learning disability and challenging behaviour and attitudes towards the inclusion of these children in mainstream classrooms. The study found a low level of knowledge in teaching staff with regards to the definition of learning disability and challenging behaviour. This may be due to terminology differences that exist between the health and education sectors. Nonetheless, teaching staff have an obligation to know what a learning disability is and may not be meeting their duty of care if, as this study suggests, they are unaware of its defining characteristics. Training was shown to significantly improve this knowledge after training and at a one-month follow-up although concerns exist about knowledge change being sustained in the longer term and results suggest that knowledge was only sustained in relation to the impaired intelligence criterion for learning disability. Additional concerns exist with regards to the types of attributions held by teaching staff about challenging behaviour in children with a learning disability, which research suggests reduces helping behaviour. These attributions did not change with training, which highlights a need for future researchers to identify effective ways of promoting more accurate and positive attributions. Teaching staff were largely unaware of positive programming strategies for helping change challenging behaviour in the longer term and they tended to refer to the use of reactive strategies consistently, even after training. Professional guidelines suggest that reactive strategies, psychological principles and positive programming should be used in combination as the most effective means of managing and changing challenging behaviour. Teaching staff may, therefore, not be properly equipped to manage challenging behaviour effectively.

The training utilised in this study significantly changed the type of knowledge held by teaching staff about challenging behaviour and participants demonstrated a broader knowledge about what challenging behaviour is and the types of management strategies that can be used, however, overall knowledge did not increase. Concerns about the scoring method employed in the study were raised as a contributing factor to this lack of increased knowledge.

Attitudes towards inclusion varied within the participant group and did not improve after training. The training, however, was not designed to address attitudes and knowledge change may not have been significant enough to impact positively on attitudes.

While considering the methodological limitations of this study, it would appear that teaching staff may not be properly equipped with the knowledge and possibly the skills to have children with a learning disability and challenging behaviour in their classrooms to the extent that is required by current legislation. There are ethical implications of this for teaching staff, the child and other children in the class. Future research needs to consider how to address these gaps in knowledge and support teachers to develop the necessary skills to successfully include children with a learning disability in mainstream classrooms. Only then might it be possible to further impact on the other issues of inaccurate attributions about challenging behaviour and possible negative attitudes towards inclusion, thus creating an optimal environment for children with a learning disability in mainstream settings.

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7.0 APPENDICES

7.1 Appendix 1: Table Summarising the AAMR and BPS' Recommended Levels of Support for People with a Learning Disability

<i>Table 1: Levels of Support Corresponding to Level of Adaptive Functioning as Recommended By BPS (2000) (p.10) and AAMR (1992)</i>		
Level of Impairment of Adaptive Functioning	Type of Support Required	Definition of Support (BPS, 2000; p10)
SIGNIFICANT	Intermittent	"Supports on an 'as needed basis'. Characterised by episodic nature, person not always needing the support(s), or short-term supports needed during life-span transition (e.g. job loss or an acute medical crisis). Intermittent supports may be high or low intensity when provided."
	Limited	"... supports characterised by consistency over time, time-limited but not of an intermittent nature, may require fewer ... [resources] than more intense levels of support ..."
SEVERE	Extensive	"Supports characterised by regular involvement (e.g. daily) in at least some environments (such as work or home) and not time-limited ..."
	Pervasive	"Supports characterised by their consistency, high intensity; provided across environments; potential life-sustaining nature."

7.2 Appendix 2: Differences in Terminology Related to Learning Disability Across Settings & Countries

Table 2: Alternative Label Use Related to the Term Learning Disability and Corresponding Definitions.			
Label	Where Applicable	Definition	Would definition include children with learning disability by UK definition?
Special Educational Needs (SEN)	United Kingdom	A legal definition. "Children with SEN all have learning difficulties or disabilities that make it harder for them to learn or access education than most children of the same age." (Department of Education and Skills, 2001)	Yes but not exclusively
Special Needs	United States	A "student with special needs" means a student who has a disability of an intellectual, physical, sensory, emotional or behavioural nature, has a learning disability or has exceptional gifts or talents". (Ministry of Education, 2006)	Yes but not exclusively

Table 2 cont: Alternative Label Use Related to the Term Learning Disability and Corresponding Definitions.			
Label	Where Applicable	Definition	Would definition include children with learning disability by UK definition?
Learning Disability	United States	learning disabilities (LD) is defined as a "disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations." Definition includes perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. According to the law, LD does not include learning problems that are primarily the result of visual, hearing, or motor handicaps; mental retardation , or environmental, cultural, or economic disadvantage. (Individuals with Disabilities Education Act, 1997)	No; by definition this excludes people under the UK definition of learning disability
Learning Disability	Germany	Officially defined as a general and total failure in academic achievement combined with an IQ between 55-85. (Prucher & Langfeldt, 2002))	Includes only people with a significant learning disability and is not exclusive to this group.

Table 2 cont: *Alternative Label Use Related to the Term Learning Disability and Corresponding Definitions.*

Label	Where Applicable	Definition	Would definition include children with learning disability by UK definition?
Mental Retardation	United States	Mental retardation is a disability characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18. (American Psychiatric Association, 1994)	Yes, the term mental retardation is synonymous with the UK term Learning disability.
Developmental Disability	United States	“a severe, chronic disability of an individual that is attributable to a mental or physical impairment or combination of mental and physical impairments, is manifested before the person attains age 22 and is likely to continue indefinitely. A developmental disability results in substantial functional limitations....” (Developmental Disabilities Assistance and Bill of Rights Act of 2000).	Yes but not exclusively

Table 2 cont: Alternative Label Use Related to the Term Learning Disability and Corresponding Definitions.			
Label	Where Applicable	Definition	Would definition include children with learning disability by UK definition?
Intellectual Disability	United States	Formally replaced the term 'mental retardation' in April 2007. "Intellectual disability is characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18." (Schalock et al., 2007)	Yes, the term intellectual disability is synonymous with the UK term Learning disability.
Intellectual Disability	Australia	In relation to a person over the age of five years and means a significant sub-average general intellectual functioning existing concurrently with deficits in adaptive behaviour and manifested during the developmental period. (Intellectually Disabled Persons Services Act, 1986).	Yes, however children under 5 years old with a learning disability would not be covered under this definition therefore the term is not totally inclusive.

7.3 Appendix 3: Attribution Themes From Leeds Attributional Coding System used in Analysis

Table 3: Attributional Themes, Corresponding Definitions and Examples		
Attribution Theme	Definition	Examples
Internal-External	Whether the origin of the cause of the challenging behaviour was with the client or not	
		Internal: 'Not able to communicate effectively'
		External: 'Tasks too demanding'
Stable-Unstable	Whether the cause was permanent.	
		Stable: 'Unable to process information therefore becomes frustrated'
		Unstable: 'Staff unaware of needs'
Personal-Universal	Whether the cause was unique to the client.	
		Personal: 'Physically unable to join others'
		Universal: 'Lack of routine and structure'
Controllable-Uncontrollable	Whether the client was in control of their behaviour and intended to do what they did.	
		Controllable: 'Wanting to get staff's attention'
		Uncontrollable: 'Change in medication'

7.4 Appendix 4: Causal Models From Challenging Behaviour Attributions Scale (CHABA) used in Analysis (taken from Hastings, 1997b)

Item and number	Sub-Scale
1. Because she/he is given things to do that are too difficult for her/him	L/LN
2. Because she/he is physically ill	BM
3. Because she/he does not like bright lights	PE
4. Because she/he is tired	BM
5. Because she/he cannot cope with high levels of stress	EM
6. Because her/his house is too crowded with people	PE
7. Because she/he is bored	ST
8. Because of the medication that she/he is given	BM
9. Because she/he is unhappy	EM
10. Because she/he has not got something that she/he wanted	L/LP
11. Because she/he lives in unpleasant surroundings	PE
12. Because she/he enjoys it	ST
13. Because she/he is in a bad mood	EM
14. Because high humidity makes her/him uncomfortable	PE
15. Because she/he is worried about something	EM
16. Because of some biological process in her/his body	BM
17. Because her/his surroundings are too warm/cold	PE
18. Because she/he wants something	L/LP
19. Because she/he is angry	EM
20. Because there is nothing else for her/him to do	ST
21. Because she/he lives in a noisy place	PE
22. Because she/he feels let down by somebody	EM
23. Because she/he is physically disabled	BM
24. Because there is not very much space in her/his house to move around in	PE
25. Because she/he gets left on her/his own	ST
26. Because she/he is hungry or thirsty	BM
27. Because she/he is frightened	EM
28. Because somebody she/he dislikes is nearby	L/LN
29. Because people do not talk to her/him very much	ST
30. Because she/he wants to avoid uninteresting tasks	L/LN
31. Because she/he does not go outdoors very much	PE
32. Because she/he is rarely given activities to do	ST
33. Because she/he wants attention from other people	L/LP

*(L) learned behaviour; (LP) learned positive; (LN) learned negative; (BM) biomedical; (EM) emotional; (PE) physical environment; (ST) stimulation.

7.5 Appendix 5: Letter Requesting Consent from Head of Schools



School of Health in Social Science
The University of Edinburgh
Medical School
Teviot Place
Edinburgh
EH8 9AG

(name)
Head of Schools
(Address)

29th July 2006

Dear (name),

Re: Request for ethical approval: The training needs of teachers in (area) in relation to children with a learning disability and challenging behaviour

I was given your name by (colleague's name) from the Additional Needs Team as she thought you might be able to help me with my request.

I am a Trainee Clinical Psychologist undertaking my training with the University of Edinburgh. I am contracted to work for (NHS trust) during my training and will be working with the (place of work) for my final year's placement, which begins in October this year. As part of this final year and I am to undertake a piece of research. I have a particular interest in Learning Disabilities and was hoping to look at the training needs of teachers in the (area) in relation to children with a learning disability and challenging behaviour. I hoped to approach individual schools and recruit teachers to take part in my study, which would consist of asking them to complete a questionnaire at different time points. The second part of my study would involve doing staff training with each school on the basis of the needs identified from the questionnaire. It would be my intention to do this training with one of the Clinical Psychologists from the (place of work).

Teachers would be informed of the aims of the study and their involvement in it. Their participation would be entirely voluntary and confidential. Should they agree to participate they would be asked to complete 2 questionnaires. The first questionnaire would involve

- Asking what their understanding is of the different terms that can be used to refer to children with additional support needs.
- Asking them to outline their understanding of the term learning disability and some of the difficulties that children with a learning disability may present with.

- Asking them what their understanding of the term challenging behaviour is in relation to children with a learning disability.
- Asking them what difficulties they might expect from a child who has a learning disability and presents with challenging behaviour.

The second questionnaire considers teaching staff's attitudes towards inclusion and would involve participants selecting answers to a series of statements about the inclusion of children with a learning disability in mainstream classrooms. The questionnaires should not take any more than 20 minutes to complete and teaching staff will not be asked for any further participation other than to attend the training should they so wish. It is our hope that the training provided will cover the above areas and address any arising concerns and will ultimately be beneficial for the teachers involved.

The reason that I am writing to you is because I need to gain ethical approval from yourself in order for me to proceed. I am, therefore, asking you for consent to continue with this piece of research. I am more than happy to provide you with further information should you require it, or would be happy to meet with you to discuss any aspects of the study.

If you do not require any additional information I would be most grateful if you could provide me with your written consent in order for me to commence with this proposed study. I have enclosed a stamped addressed envelope for your convenience.

I look forward to hearing from you at your earliest convenience.

Yours sincerely,

(name)
Trainee Clinical Psychologist

(name)
Academic Supervisor

7.6 Appendix 6: Letter from Head of Schools Granting Permission to Undertake Study

7.7 Appendix 7: Letter to Head Teachers Outlining Study and Requesting Consent to Involve School

Dear (name of head teacher)

I am a Trainee Clinical Psychologist working within (area) and I recently began my final year of training at (place of work). I have a special interest in working with children with a learning disability and consequently am undertaking my thesis in this area. The reason that I am writing to you is to provide some information about my thesis and ask that you consider whether the teachers at your school may be interested in taking part.

The main aim of my thesis is to consider the impact of staff training on knowledge about children with a learning disability and challenging behaviour in a population of primary and secondary school teachers in (area).

I hope to include any teacher or teaching auxiliary with an interest in learning more about working with children with a learning disability and/or challenging behaviour. It is hoped that the study will include teachers from mainstream classes as well as specialist classes.

In terms of what would be involved, I would initially be asking teachers to fill out two questionnaires; one designed to elicit information on their current knowledge about learning disabilities and challenging behaviour and one to ask their opinions on how inclusion impacts their experience of teaching. Following this, (name of colleague) at the (place of work), and myself would be offering a training event in relation to working with children with a learning disability and challenging behaviour. We will try to fit the training date into your school's timetable. In order to evaluate the training, which is one of the aims of my thesis, I would be asking teachers to fill in the questionnaires mentioned above at the end of the training day and again a number of weeks after the training. The questionnaires take about 20 minutes to fill in and it is hoped that this will not place too great a demand on the teachers involved.

Obviously the advantage for teachers is that they will receive training in an area they want to develop their skills in. The only requirement from my perspective is that they fill out the questionnaires on three occasions in order for me to evaluate the training.

I have written to (name), Head of Schools, who gave me consent to approach individual head teachers in relation to this study. I am also liaising with Educational Psychology so that they know about the study and what it will involve.

If you feel this study would be of interest to the teachers in your school I wonder if you would outline the details in this letter to your staff team at your earliest convenience. I will contact you in the next few weeks to see if there is enough interest to begin organising possible training dates. I will also be able to answer any questions you may have about the study at this time.

I should also reinforce that there is no obligation to take part in this study and should the teachers at your school feel that this is not relevant to their needs or do not wish to be involved then you can confirm this when I contact you and I will have no further reason to contact you in relation to this study.

I am very grateful to you for taking the time to read this letter and forward it, as you see fit, to the teachers in your school.

I look forward to speaking to you in the forthcoming weeks.

Yours sincerely,

(name)
Trainee Clinical Psychologist

(name)
Clinical Thesis Supervisor

7.8 Appendix 8: Invitation to Training (Email)

Dear (enter name),

You may remember that I wrote to you earlier this year in relation to my research thesis. You indicated some interest about the training event for a number of the teachers at your school (enter names). I am currently organising training dates according to which areas have expressed most interest.

I am writing to invite the above teachers and anyone else who may be interested from your school, to the following training event.

We are undertaking a training event on (date) at (School) in (Town) from 3.30-7.30pm. This is a one-off training event looking at working with children with a learning disability who display challenging behaviour. I have outlined the contents of the training below.

Part of my thesis is to evaluate the training in terms of changing Participants' knowledge, therefore, everyone attending the training will be asked to fill out 2 short questionnaires at the start of the session and again at the end. I will then ask people to fill these questionnaires out again one month after the training- this will be done by sending questionnaires out with a stamped addressed envelope to return to me. This is the only requirement of teachers attending the training.

I hope this training is still of interest to you and your teaching staff. Any members of your staff team are welcome to attend (teaches and auxiliaries), however, I would need to know numbers as soon as possible so I can inform (School) as to how many are attending.

If you have any questions then please feel free to email me or contact me at the (work address) (email and telephone number)

I look forward to hearing from you.

Many thanks

Name
(Trainee Clinical Psychologist)

The training will cover the following areas;

- History of learning disability services
- What is a learning disability? (defining criteria and what they mean)
- What are the implications of having a learning disability?

- Challenging Behaviour- Definition
- Reactive Strategies
- Positive Programming
- Behavioural Interventions
- The Assault Cycle
- Duty of Care

7.9 Appendix 9: Learning Disability Training Handout Provided After Training

7.10 Appendix 10: Challenging Behaviour Training Handout Provided After Training

7.11 Appendix 11: Evaluation of Training Questionnaire

**FEEDBACK FOR LEARNING DISABILITY/CHALLENGING BEHAVIOUR
TRAINING**

1. Do you feel that the training was pitched at the right level for your needs?

YES / NO

If no, please state why?

2. Did the training cover all the areas you hoped it would?

YES / NO

If no, please indicate which areas you would have liked included?

3. Do you think you will use aspects of the training in your daily work?

YES / NO

If no, please indicate why

If yes, please indicate what aspects you think you will use.

4. What was the most useful part of the training?

5. What was the least useful part of the training?

6. What did you think about the length of the training?

Too short / About right / Too long

7. Any additional comments about the training will be most appreciated

7.12 Appendix 12: Covering Letter for Follow-up Questionnaires

Dear (name ,

Re: Training Event on (date and venue)

I have enclosed the questionnaires related to the recent training event that you attended on 'Learning Disability and Challenging Behaviour'. You may remember that I asked you to fill these out prior to and immediately after the training. I wondered if you could please take the time to fill them out one last time. This will allow me to evaluate the training after a period of time has elapsed.

I have enclosed a stamped addressed envelope for your convenience. If you could return the questionnaires to me as soon as possible it would be much appreciated. *Can I remind you that the questionnaires are anonymous and confidential.*

Following the completion of these questionnaires, no further involvement is necessary. I'd like to thank you once again for your participation.

Yours sincerely,

(name)
Trainee Clinical Psychologist

(name)
Clinical Thesis Supervisor

7.13 Appendix 13: Knowledge of Learning Disability and Challenging Behaviour
Questionnaire

**WORKING WITH CHILDREN WITH A LEARNING DISABILITY WHO
DISPLAY CHALLENGING BEHAVIOUR**

Section One

Please complete the following about yourself and your work.

1. Gender: Male / Female
2. Age (years) _____
3. Number of years working as a teacher/auxiliary (*delete as appropriate*)

4.a

<i>Current Place of Work</i>	<i>Tick</i>
Primary	
Secondary	

4.b

<i>Current Place of Work - Setting</i>	<i>Tick</i>
Mainstream	
Autism Unit	
Language Unit	
Emotional & Behavioural Support Unit	
Learning Support Unit	
Other (please specify) _____	

- 5.a** Have you ever had any additional or specialist training to supplement your basic training.

Yes / No

- 5.b** If the answer to the above question is 'Yes' please list the additional training you have received (include any additional certificates, modules you have completed or training events you have attended):

6. To what extent do you feel your *basic* training prepared you for working with children with a learning disability? *Please place a cross on the scale according to how prepared you feel.*

Very Prepared				Not at all Prepared

Section Two

We are aware that different terms are used in the health and education sectors to refer to children who require increased levels of support in the classroom. We are also aware that sometimes people's understanding of these terms can differ too. For the purposes of this study we are only interested in children with a learning disability.

1.a Please provide a brief description of your understanding of the term 'learning disability'.

Learning Disability:

1.b Do you understand any other terms to mean the same as 'learning disability'? If so please write the terms below:

2. Do you currently have a child/children with a learning disability in the class you work in?

Yes / No

3. In total, how many years experience do you have working with children with a learning disability?

_____ years

5. How confident do you feel working with children with a learning disability? ?
Please place a cross on the scale according to how confident you feel.

Very Confident			Not at all Confident

Section Three

In this section we are interested in your understanding of 'challenging behaviour' in relation to children with a learning disability.

1. What do you think the term 'challenging behaviour' means in relation to children with a learning disability?

2. What do you think some of the main reasons are for a child with a learning disability displaying challenging behaviour?

3. What are some of the ways of managing challenging behaviour displayed by a child with a learning disability?

4. How confident do you feel working with children with a learning disability who also display challenging behaviour? *Please place a cross on the scale according to how confident you feel.*

Very confident			Not at all confident

Thank you for your participation

7.14 Appendix 14: Impact of Inclusion Questionnaire

IMPACT OF INCLUSION QUESTIONNAIRE

Listed below are a number of statements about **children with a learning disability**. Please read each statement carefully as some may contain double negatives. Use the scale below each statement to indicate your agreement or disagreement with the statement. Circle the point on the scale that best represents your opinion.

VSA = Very strongly agree

SA = Strongly agree

A = Agree

U = Undecided

D = Disagree

SD = Strongly disagree

VSD = Very strongly disagree

If you agreed with the statement, you would circle VSA, SA, or A, depending on how strong your agreement was. Similarly, if you disagreed with the statement you would circle VSD, SD, or D. If you were undecided about your opinion, you would circle U.

Please indicate your opinion about all of the following statements.

Having children with a learning disability in my class would...

- | | |
|--|---------------------|
| 1. ...physically wear me out. | VSD SD D U A SA VSA |
| 2. ...interrupt the classroom routine. | VSD SD D U A SA VSA |

3. ... <i>not</i> prevent me from giving attention to the other children in the class.	VSD	SD	D	U	A	SA	VSA
4. ...give them an audience to perform to.	VSD	SD	D	U	A	SA	VSA
5. ...drain the school's financial resources.	VSD	SD	D	U	A	SA	VSA
6. ...not place me under additional stress.	VSD	SD	D	U	A	SA	VSA
7. ...lead to rejection from other children within the classroom.	VSD	SD	D	U	A	SA	VSA
8. ...upset the other children in the classroom.	VSD	SD	D	U	A	SA	VSA
9. ...not pose a physical threat to me.	VSD	SD	D	U	A	SA	VSA
10....negatively affect the smooth running of the school.	VSD	SD	D	U	A	SA	VSA
11....not cause disruption within the classroom.	VSD	SD	D	U	A	SA	VSA
12....increase other children's problematic behaviour in the classroom.	VSD	SD	D	U	A	SA	VSA
13....be popular with parents.	VSD	SD	D	U	A	SA	VSA

Having children who display challenging behaviour in my class would...

14....take up a disproportionate amount of my time.	VSD	SD	D	U	A	SA	VSA
15.... <i>not</i> place the other children in danger.	VSD	SD	D	U	A	SA	VSA
16.... <i>not</i> encourage their difficult behaviour.	VSD	SD	D	U	A	SA	VSA
17.... <i>not</i> drain me emotionally.	VSD	SD	D	U	A	SA	VSA
18....hold back their academic performance.	VSD	SD	D	U	A	SA	VSA
19....give people a more positive view of the school.	VSD	SD	D	U	A	SA	VSA
20.... <i>not</i> be a frightening experience for them.	VSD	SD	D	U	A	SA	VSA
21....increase my workload to an unacceptable level.	VSD	SD	D	U	A	SA	VSA
22....increase other children's learning opportunities in the classroom.	VSD	SD	D	U	A	SA	VSA

23....benefit their personal development.

VSD SD D U A SA VSA

24....negatively affect the achievement of other children in the classroom.

VSD SD D U A SA VSA

7.15 Appendix 15: Themes Used in the Analysis of Hypothesis 2

The tables below summarise the details of the themes used to score participants' answers to the challenging behaviour definition (table 4) and management questions (table 5)

Table 4: Themes for Challenging Behaviour Definition, Description and Examples		
Theme	Definition of Theme	Examples
Topography	An accurate example of the type of behaviour considered challenging	Physical Aggression (kicking hitting biting etc) Non-compliance, Destructive Behaviour, Hyperactivity
Safety	Any reference to risk of harm to self, the child or others. Includes reference to violence	Dangerous behaviour, violent behaviour, other children feel threatened
Limited Access to Services	Any reference to reduced access to educational services as result of behaviour	Behaviour that results in child being removed from class due to disruption to rest of class. Child is unable to take part in class activity due to challenging behaviour.
Difficult for Service to Cope with	Reference to heightened levels of stress in teachers, an inability for teacher to cope with behaviour, the need for additional support from others to manage the behaviour.	Children with challenging behaviour may need additional support from ANA to remain in class. Causes disruption to the class and places extra demands on teacher.
Function of Behaviour	Any reference to a reason for the behaviour or cause of.	Unable to cope with work and is frustrated, does not understand

		what is expected of him, wants your attention.
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Table 5: Challenging Behaviour Management Themes, Description and Examples		
Theme	Definition of Theme	Examples
Environmental	Any reference to making environmental changes to manage the challenging behaviour	Removal from the class, change of activity, ask ANA for support.
Reactive	Any reference to an immediate and reactive response to challenging behaviour.	Ignore, redirect, distract, reassure.
Psychological Principle	Reference to basic behavioural principles or ways of addressing function of the behaviour.	Use of any reinforcement principles- reward wanted behaviour, ignore unwanted behaviour, star charts.
Positive Programming	Reference to changing the unwanted behaviour by teaching new alternatives/skills. Promoting behaviour change in the longer term.	Help teach child new way of getting their needs met.

7.16 Appendix 16: Inter-Rater Levels of Agreement and Kappa Scores for Each Individual Theme

Table 8: Inter-Rater Reliability for Individual Themes Used in the Analysis of Participants' Answers				
Question Number	Question	Theme	Kappa value	Levels of Agreement According to Fliess (1981)
Section 2, 1.a	Please provide a brief description of your understanding of the term 'learning disability'.	Reference to difficulty with specific aspect of cognitive functioning	0.625	good
		Difficulty learning or accessing mainstream curriculum	0.75	excellent
		Needs additional support in class	1.00	excellent
		Emotional or behavioural problems	1.00	excellent
		Physical difficulty/disability	1.00	excellent

		Use of an alternative label	1.00	excellent
Section 3, 1	What do you think the term 'challenging behaviour' means in relation to children with a learning disability?	Function	1.00	excellent
		Topography	1.00	excellent
		Safety	1.00	excellent
		Access to Services	1.00	excellent
		Difficult to Cope With	0.75	excellent

Table 8 cont: Inter-Rater Reliability for Individual Themes Used in the Analysis of Participants' Answers				
Question Number	Question	Theme	Kappa value	Levels of Agreement According to Fliess (1981)
Section 3, 2	What do you think some of the main reasons are for a child with a learning disability displaying challenging behaviour? Themes from Leeds Attribution Coding System- Adapted Version According to Brewin et al. 1991)	Internal	1.00	excellent
		External	1.00	excellent
		Personal	1.00	excellent
		Universal	1.00	excellent
		Stable	1.00	excellent
		Unstable	1.00	excellent
		Controllable	1.00	excellent

	<p>What do you think some of the main reasons are for a child with a learning disability displaying challenging behaviour?</p> <p>Themes from CHABA Themes (Hastings, 1997b)</p>	Uncontrollable	1.00	excellent
		Learned Behaviour	0.72	good
		Biomedical	1.00	excellent
		Emotional	0.632	good
		Physical Environment	1.00	excellent
		Stimulation	1.00	excellent

Table 8 cont: Inter-Rater Reliability for Individual Themes Used in the Analysis of Participants' Answers				
Question Number	Question	Theme	Kappa value	Levels of Agreement According to Fliess (1981)
Section 3, 3	What are some of the ways of managing challenging behaviour displayed by a child with a learning disability?	<i>Environmental</i>	<i>0.80</i>	<i>excellent</i>
		Reactive	1.00	excellent
		Psychological Principles	0.75	excellent
		Positive Programming	0.75	excellent

7.17 Appendix 17: Non-Significant Results for Hypotheses 1 and 2

Hypothesis 1

Table 29: Non-Significant Findings of Hypothesis 1; Part b					
		Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.017)
Hypothesis 1 Part B	Non Significant differences between time points for learning disability defining criteria	Adaptive Skills	Pre Training- Follow-up	18	p = 0.063
		Age of Onset	Pre Training- Follow-up	17	p = 0.063
			Post Training- Follow-up	17	p = 0.063

Hypothesis 1 Part C	Non significant differences between criteria for learning disability post training	Post Training	Adaptive Skills _Age of Onset	38	p = 1.00
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Hypothesis 2

Table 30: Non-Significant Findings of Hypothesis 2; part a (differences between criteria)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.005)
Hypothesis 2 part a	Non significant differences between criteria for defining challenging behaviour according to time point	Pre- Training	Function-Topography	37	p = 0.089
			Topography- Safety	37	p = 0.039
			Topography-limited access	37	p = 0.118
			Topography-service can't cope	37	p = 0.033

			Safety-limited access	37	p = 1.00
			Safety-service can't cope	37	p = 1.00
			Limited access-service can't cope	37	p = 1.00

Table 30 cont: Non-Significant Findings of Hypothesis 2; Part a (differences between criteria)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.005)
Hypothesis 2 Part a continued	Non significant differences between criteria for defining challenging behaviour according to time point	Follow-up	Function-Topography	19	p = 0.388
			Function-Safety	19	p = 0.180
			Function-Limited Access	19	p = 0.289
			Function-Service Can't Cope	19	p = 0.219
			Topography-Safety	19	p = 0.727

			Topography-Limited Access	19	p = 0.008
			Topography-Service Can't Cope	19	p = 0.021
			Safety-Limited Access	19	p = 0.006
			Safety-Service-Can't Cope	19	p = 0.006
			Limited Access-Service Can't Cope	19	p = 1.00

Table 31: Non-Significant Findings of Hypothesis 2; part a (differences between time points)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.017)
Hypothesis 2 part a cont	Non significant differences between time points for the safety criterion in challenging behaviour definition	Safety	Pre Training-Post Training	34	p = 0.146
			Post-Training-Follow-up	17	p = 0.031

Table 32: Non-Significant Findings of Hypothesis 2; part b (differences between attributions)					
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Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.004)
Hypothesis 2 Part b	Non significant findings between attributions according to time point	Pre Training	Controllable-Uncontrollable	37	p = 0.804
		Post Training	Controllable-Uncontrollable	39	p = 0.180
		Follow-up	Personal-Universal	19	p = 0.016

Table 33: Non-Significant Findings of Hypothesis 2; part b (differences between time points)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.017)
Hypothesis 2 Part b	Non significant findings between time points for the emotional causal model	Emotional Causal Model	Pre Training-Post Training	37	p = 0.077
			Pre Training-Follow-up	18	p = 0.125
			Post Training-Follow-up	19	p = 0.453

Table 34: Non-Significant Findings of Hypothesis 2; part c (differences between strategy types)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.008)
Hypothesis 2 Part c	Non significant findings between management strategy types for challenging behaviour according to time point	Pre-Training	Environmental-Reactive	36	p = 0.481
			Environmental-Psych. Principles	36	p = 0.078
			Reactive-Psych. Principles	36	p = 0.405
		Post-Training	Environmental-Reactive	38	p = 0.180

			Environmental-Psych. Principles	38	p = 0.011 (Chi-Square x2 = 6.50)
			Environmental-Positive Programming	38	p = 0.118
			Reactive-Psych. Principles	38	p = 0.134

Table 34 cont: Non-Significant Findings of Hypothesis 2; part c (differences between strategy types)					
Hypothesis	Non-significant Finding	Variable used in Cochran's Q	McNemar Pairings	Number	p Value (= 0.008)
		Follow-up	Environmental-Reactive	18	p = 0.039
			Environmental-Psych. Principles	18	p = 1.00
			Environmental-Positive Programming	18	p = 0.125
			Reactive-Psych. Principles	18	p = 0.146

			Psych. Principles- Positive Programming	18	p = 0.063
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